E-GOVERNANCE AND URBAN POLICY DESIGN IN DEVELOPING COUNTRIES

Fabienne Perucca

Peter Sonntagbauer

Camera ready copy

30 september 2014

COPYRIGHT

DISCLAIMER

Foreword

Introduction

Fupol Project and UN-Habitat

Contributions from India, Indonesia, Brazil, South Africa, Nigeria, Iran, Japan, Mexico, Oman, etc.

CONCEPTS

e-governance

urban policy design

CHALLENGES

Urbanisation trends

Local capacities to address local needs

ICT potential and risks

PURPOSE OF THE BOOK

Present state of the art through contribution from developing countries' authors.

Points of view of academics and practitioners. Different backgrounds: urban, technologies, policy-making… revealing the diversity of application of ICT to governance and the need to foster dialogue between fields of work.

Highlight challenges and recommendations

Contents

PART 1 - E-GOVERNANCE, PARTICIPATION AND ENGAGEMENT

CHALLENGES

QUICK FACTS

POLICY POINTS

“City Changer Labs and Digital Civics”

Alfonso Govela

Mexico

Abstract

Citizens are the driver of cities. Their creativity can be mobilized in a comprehensive and participatory planning process that fosters social cohesion, and opens up social paths of change to better prepare citizenship for the upcoming unprecedented urban growth. Digital Civics a UN-Habitat initiative mediates citizens interactions through platforms of knowledge, ecosystems of interaction, and interfaces for governance. One of its prototype projects, City Changer Labs, engages youth to solve urban issues with mobile innovation and entrepreneurship in order to become technologically empowered and socially contextualized citizens[i].

Keyword: ICT, Governance, Youth, Innovation, Entrepreneurship, Mobile Technology, Living Labs, City Changer Labs, Digital Civics,

INTRODUCTION

Cities will expand and mutate at unprecedented ranges and rates. By the year 2050, a 2.7 billion additional inhabitants will demand an increase, in only 35 years, of three quarters of all existing urban stock[ii]. The pressures to house this population, to build and operate physical infrastructures, and to provide urban services, cannot be met, at this massive and short timed scale, without substantial changes in the ways citizens behave and engage in public life.

Traditionally, social organizations arose and adapted, at a slow pace, to old pre-existing urban forms, transforming them while discovering new urban configurations. Accelerated city growth, in an era of digital connectivity, has to consider now alternative ways for citizenship to be the cause and effect of new city structures. Citizens are the producers of, rather than the consumers of, cities, and innovative relationships between individuals and governments are needed to bring mayor political transformations in civic life both at digital spaces and places[iii] in the territory.

Nowadays technology-based solutions promote a paradigm of intelligent urban development, or “smarter”[iv] infrastructures, to become more sustainable and resilient, but there is still much to do on behalf of citizens themselves, to increase equity in development, equal access opportunities to knowledge and communication, and to open up the creation of innovative governance and social infrastructure[v]. New levels of participatory action, investments in social capital and wise management of resources are needed in order to solve some of the most complex problems currently facing cities[vi].

Digital Civics, a UN-Habitat Initiative, provides a set of basic principles that can be used both as a conceptual framework to understand the exploding field of smart cities, and as a road map to help guide

the formulation of policies, programs, and projects for citizens to interact with their environments, and among themselves, through digital tools.

As part of this initiative, City Changer Labs (CCLs) engage youth to solve urban issues through innovation and entrepreneurship in mobile technology.

BACKGROUND

The world is young, urban, mobile, increasingly digital, but still unequal. Half of its population is under the age of 30[vii] and live in cities[viii], global penetration of mobile-cellular subscriptions has reached 96 percent[ix] of its inhabitants, one third of society use Internet[x], but one fifth still remains below the poverty line.

Making youth partners in development can help ease their transition to productive citizens. They are, after all, a major human resource and key agents for economic growth and technological innovation. When empowered to play a vital role they shape both the process and the outcome of personal and communal development[xi].

Working for youth as beneficiaries, engaging them as partners, and supporting them as leaders, can help appreciate and mobilize their talents and strengths, reduce their vulnerability to unstable environments[xii], increase their absorption into the job market and their gainful employment, and built, as a result, a stronger economic base that reverse poverty trends[xiii]. There is a strategic urgency to raise the human capital of youth through education and training, to help them become more productive during their working years[xiv].

Daniella Ben-Attar and Tim Campbell[xv] have identified a framework for youth and ICT-enabled governance. Their research shows how mobile platforms, the most important ICT tools that affect youth, can enhance their engagement in local government affairs and foster inclusiveness and responsiveness. Through crowdsourcing, geo-referencing, and communication networks, youth are leading the way in political participation.

A natural enabling environment for promoting youth and governance are Hackathons. Hackathons are events for software development. The name blends the words “hack” & “marathon”. The first refers, in today dictionaries, to playful and exploratory programming, dealing with something successfully, in a quick and inelegant manner, clearing one way, figuratively speaking, through metaphorical jungles. The second express a common practice in software development: marathon bursts of coding.

As Steve Levy explains historically, “hack”, in ancient MIT Lingo, meant a feat imbued with innovation, style and technological virtuosity. Within this context hackers are adventurers, visionaries, risk-takers, and artists, conscious that one could go infinitely far by immersion in the deep concentration of the hacking mind-set. Their philosophy of sharing, openness, decentralization, and hands-on experience, aims to improve both machines and the world at large. From the true innovators at MIT Artificial Intelligence Lab in the fifties and sixties, to the populist Californian coders of the seventies, to the gammers of the eighties, Levy shows how hackers believe they understand machines at its most profound levels, and how their quests have written the real story of the computer revolution[xvi].

In the past two years Hackathons have exploded as marathon coding competitions to pitch, program, and present, functional application prototypes developed in few hours. With them has come a wave of innovation and entrepreneurship, and new opportunities to network, learn, and test ideas and technological solutions. For ICT industry and venture capitalists, Hackathons are an ideal way to recruit talent, and discover good ideas for funding[xvii].

Hackathons build upon another important method: agile software development[xviii], Agile methodology primes prototypes and iterations, as its Manifesto proclaims, it values individuals and interactions, collaboration and response to change, and believe that the best software architectures, requirements, and designs emerge from self-organizing teams. With new ICT tools and resources, Hackathons can help catalyze the new philosophy of "now-ist" or "Deploy or Die" of Joi Ito[xix], and "focus on being connected, always learning, fully aware, and super present".

Hackathons, however, frequently miss pertinent social challenges and lack continuity to support development of their application prototypes. CCLs offer a response to these two unattended needs: relevant urban challenges, through communal definition with the help of UN-Habitat global knowledge of urban issues, and a new pipeline for innovation and entrepreneurship that accelerates their proposals into commercial products and opportunities for youth entrepreneurship.

MAIN FOCUS OF THE CHAPTER

Digital Civics

The Hackathons of City Changer Labs happen within the framework of Digital Civics, a new UN-Habitat initiative to support effective citizenship and governance to better prepare for expected city growth.

The purpose of Digital Civics is to put people first, engage citizens in collective action, to empower their awareness, decision-making, tactical influence, and the construction of new social paths for change, which will in turn prepare cities for the future challenges they will face.

People are the real drive of cities and their transactions are at the heart of urban life. How they connect, relate, and act, create those networks of interactions that Manuel Castells calls the space of flows in the space of places[xx]. We could well think of these transactions as the synapses of cities, and call those clefts where their sparks happen: the space of interfaces. That is the connecting points where people link activities into issues circulating through the nodes of the space of flows.

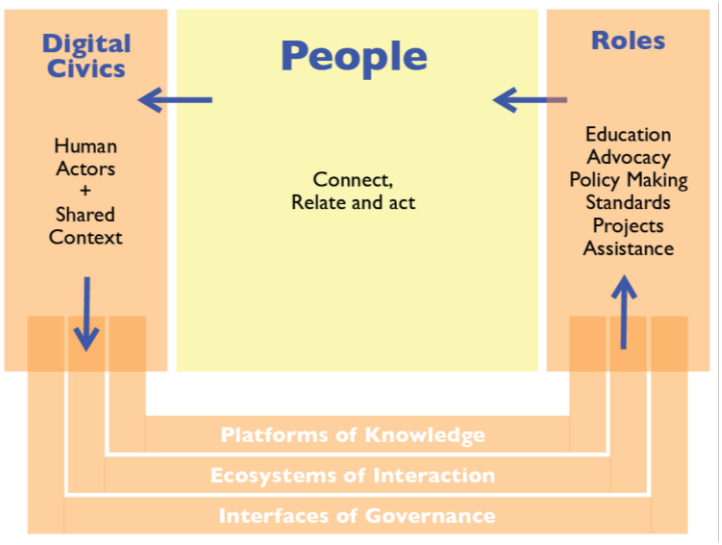
Digital Civics works at this space of interfaces, considering technology as part of a larger scope of human activities that occur in a social context, influencing work and tools applied to reach particular goals. Emphasis is on interaction between human actors and their shared contexts, understanding, as in Activity Theory[xxi], that tools shape the way we interact with reality, and usually reflect the accumulation and transmission of social knowledge[xxii] over time.

Complementary to smart cities that rely on sensing, Digital Civics rely on acting. Sensors, networks and analytics are the main elements of smart cities, while the components of this new initiative are human actors, that belong to communities, with shared norms, a clear division of labor, precise tools, and common goals for collective action.

Civics involves traditionally the study of citizenship: educating the citizen about its rights and duties, its role in the choice of a form of government, with its operation and oversight; about ethics in public life, the adoption of legal codes, the application of justice, the control of legal systems; the processes of governance, the balance of power and even the desired kind of state. New digital resources transform these civic activities and allow communities to engage in dialogue, make decisions, translate expectations into policy, and monitor compliance. There are plenty of opportunities to empower citizens to identify relevant issues, understand the implications of their solutions, and respond with concrete actions.

Four goals guide Digital Civics: *Foster Social Cohesion* as mission, *Promote Openness and Transparency* as vision, *Work with Comprehensive Participatory Planning* as instrument, and *Use ICT* as media.

Three layers of components conform Digital Civics: *Knowledge Platforms*, *Ecosystems of Interactions*, and *Interfaces for Governance*. Platforms for Knowledge structure a field of expertise for open collaboration. Ecosystems of Interaction engage citizens in collective action. Interfaces of Governance orchestrate flows of interchange.



Graphic No. 1. Digital Civics,

Platforms for Knowledge order Data, Analytics, Visualization and Collaboration tools. A particular field of knowledge orders its information, complements its analysis with predefined functional operations, provides standard means to visualize its results, and promotes cooperation among its community of users and working groups. Open Data movement, is a well known example of a Platform of Knowledge where data is structured to be freely available to everyone without restrictions from any mechanism of control. Others examples include, among many, the United Nations Sustainable Development Knowledge Platform[xxiii], or the Green Growth Knowledge Platform by the Global Green Growth Institute, the Organization for Economic Co-operation and Development, the United Nations Environment Program and the World Bank[xxiv], or, more generally, APIs, Application Programming Interfaces that provide data bases, software components and their interaction for open software development in a specific field, like Maps API for Google Developers.

UN-Habitat Mexico has started to develop knowledge platforms for the agency own programs, in particular the City Prosperity Index, Safer Cities and the City Resilience Profiling Program.

Creating knowledge platforms opens up the possibility for Ecosystems of Interaction to engage the public in co-creation and cooperative work that sparks innovation and entrepreneurship. They do so by providing enabling environments where stakeholders can use predefined tool-kits to set common goals and to solve clear urban challenges. These ecosystems of interaction can take many forms that range from training and capacity building experiences, online educational opportunities, to living labs, open-hardware events, fab labs, artistic hacker spaces, entrepreneurial workshops, boot camps, conferences or competitions, among many.

UN-Habitat Mexico has explored two examples of Ecosystems of Interaction: City Changer Labs showing how to engage youth to solve urban issues with mobile technology, and the Block-by-Block[xxv] Competition at Aldea Digital 2014 in the Zocalo of Mexico City, where 7,500 children came out to play with Minecraft to learn how public space is built, and collected 431 complete children projects for Plaza Tlaxcoaque in the Downtown Historic District.

Interfaces of Governance coordinate flows of interactions, with digital and collaborative resources that promote massive engagement and collaborative action. For example, the largest inclusive planning process underway with UN Global Survey for a Better World lets citizens vote their priorities for the global agenda of developmental issues. A proposal is underway to link these priorities to ecosystems of interaction for global mass collaboration[xxvi].

This conceptual framework of knowledge platforms + ecosystems of interactions + interfaces of governance, can be useful to understand the multitude of initiatives being promoted worldwide by the smart city movement, and serve as a preliminary scouting of a road map for the territory of potential actions for a new form of citizenship.

The social relevance of Digital Civics consists in making knowledge open and collaborative, interactions possible in diverse tool-making environments, with governance always in control of public rule-making opportunities.

City Changer Labs

City Changes Labs (CCL) began two years ago as part of the UN-Habitat campaign *I´m a city changer*[xxvii], and also aligned with other Agency´s thematic priorities such as governance under the Urban Legislation, Land and Governance Branch, and youth and employment under the Youth and Job Creation Unit in the Urban Economy Branch.

The initiative, began in August 2012, entails centers of innovation and entrepreneurship where young people create new digital technologies to address urban challenges. The City Changes Labs call young people to a process that catalyzes and channels their creativity, strengthens existing initiatives in the local ecosystem of innovation and entrepreneurship, fosters synergies between such actions and promotes global talent networks to improve cities.

Citizen participation, particularly civic engagement of youth, is the main political goal of City Changer

Labs. Its process benefits government and citizens by helping develop leadership and management skills that increase awareness, facilitate decision-making, promote tactical influence, and open up new paths for change. The empowerment of multiple stakeholders, and their interconnection to relate and act, comes from the application of social innovation processes that enable the creation of civic oriented technologies by communities to solve local challenges through civic engagement and collective action[xxviii].

The CCL process is coordinated with local actors, public institutions and the private sector to be most beneficial, and it is composed of three phases: creativity, innovation and entrepreneurship.

First Phase

The first phase begins with a Hackathon that lasts a weekend (36 hours). The participants ages 18-30 have a multidisciplinary background and are challenged with a specific urban theme of their local context.

Calls for Participation in Hackathons include posters, banners and info graphics distributed through social media and physical presence. Banners present, with a compelling visual design, the urban issue to be solved, with a tagline that attracts and orients the potential audience toward the theme to tackle with an App prototype. Infographics give more clues in a couple of paragraphs that summarize -day by day- the dynamics of the event, the roles of competitors, jury, and mentors, the desired profiles of participants, the results expected and following steps after winning the contest.

Figure 1. City Changer Labs promotion material.

A format-questionnaire for enrollment, at a website registration link, helps detect the background and particular ideas of participants, and allows to conduct, during two weeks, the selection of a balanced group of social innovators, software developers, marketing, design, communication and entrepreneurs. An intense interchange of e-mails and chats with registry, and local communities, complements the selection process in order to balance a group of talented multidisciplinary and creative individuals.

On the morning of the first day, the challenge is explained in detail, together with the context that gives

relevancy to its solution, and the criteria for selecting the winners is presented: innovation and creativity of the proposed idea, social impact of the App, and capacity of the winning team to develop a commercial product.

Thirty six hours later participants deliver a functional prototype, and hand in two products: code and a slide presentation of their idea. A panel of judges formed by renowned leaders and thematic experts, local authorities, academia and private sector, grade their results, deliberate in private, and a final verdict is publicly announced.

Second Phase

The winners advance to the second phase of the process, where the app developers receive a scholarship to convert, during the next four months, with the support of academic institutions and private sector, the prototype of the awarded application into a version ready for public launch. Agreements with city authorities, and public-private partnerships are signed to enable the sustainability and viability of the app, and the app "back office" in order to feed public policy instruments and/or urban activities. During this stage youth are also trained in marketing, advertising, communication, marketing strategy, among other subjects that should be incorporated into the commercial future of the application.

Third Phase

The last and third stage begins when the app is ready for the next leap: to become public and for general use. During the next four months activities include: brainstorming sustainable business model alternatives, formalizing the status of the app into a start-up and liaising with local actors to include this new Start-Up technology to the local social fabric.

Results

All applications are Open Source, and Creative Commons Attribution-NonCommercial-ShareAlike.

To date, there are 6 City Changer Labs, three in Mexico, one in Central America, one in South America, and a joint partnership in Miami, USA.

Its themes are:

"Youth and Governance" (2012), in Mexico City, with the support of Telmex, the largest Mexican telecommunications carrier.

"Youth and Public Space" (2013), at Monterrey, Mexico, promoted by the Laboratorio de Convivencia and IMPLANC, Instituto Municipal de Planeación y Convivencia.

"Youth and Financial Inclusion" (2013), in San Salvador, El Salvador, with the participation of Un-Habitat and AECID, Agencia Española de Cooperación Internacional para el Desarrollo.

"Youth and Hard-Cities / Soft-Cities" (2013), a virtual CCL at TAGDF, a Televisa event in Mexico City.

"Youth and Urban Resilience" (2014), at Medellin, Colombia, as part of the 7th World Urban Forum, and the first international hackathon.

"Social Good: Using Technology to Solve Problems in Emerging Markets" (2014), in Miami, USA, with eMerge Americas 2014

As a result, there have been near 600 participants, 65 new Apps prototypes and 6 winners: "City Changes", an aggregator of citizen initiatives; "Kualy", good stories to counteract a social imaginary of violence; "KKO", a bank-less mobile finance alternative; "Air Predictor", a personal and personalized air quality monitor; "WeMake" a network-making resource for social resilience; and "DLD" a community engagement tool for GitHub[xxix] software developers interested in social good.

Figure 2. City Changer Labs Apps examples.

Our experience has met with extraordinary interest from local and international youth, as well as support from local public-private partnerships, authorities, private enterprise, and academic institutions.

The City Changer Labs facilitate the participation of young people to become active citizens in the democratic transformation of their cities' urban management and improvement of the local digital and knowledge economy.

Among the lessons learned: the importance of creating controlled ecosystems of interaction for people to participate. Equally important to understand that the definition of urban issues can be bettered by building upon existing participatory processes already binding communities of interest, such as MyWorld, the United Nation global survey where citizens vote on issues relevant to their daily lives. There has been strong support in all CCLs from different interest groups, the coincidences with their causes and goals definitely promotes synergy. The mixture of different backgrounds of participants in multidisciplinary teams contributes strongly to richer proposals, and open up new opportunities for cooperation and even friendship.

It has not been easy, on the other hand, to create platforms of knowledge and data as foundations to build upon these enabling environments for interaction. Neither to keep the enthusiastic support of resources for phase two: scholarships, nor to wait for much longer periods of development of commercial products, up to two years for the first App, or to appease fearful local politicians of their imaginary threats in social

networks for unresolved citizens initiatives.

The measurable benefits for governments and citizens, until now, have been the response of interest, both in the number of participants, as in the sum of stakeholders engaged in the process. It is too early in the program to deliver meaningful statistics for the selected applications, as most are still under development, but it is important to mention what has happened around each event, and how these events have become important entry points for citizen engagement.

Theme	Local Counterpart	Local Support	Number of Institutions	Number of Participants	Number of Apps & Projects	Additional Results
Youth and Governance	CTIN, Centro de Tecnología e Innovación de América Móvil, Telcel y Telmex	Telmex	1	100	13	"xmiciudad" an API for citizen participation has been developed by Telmex and is ready to be launched first in 31 state capitals of Mexico, and 92 other cities in the country and Latin America with America Movil.
Youth and Public Space	IMPLANC, Instituto Municipal de Planeación y Convivencia. LABC, Laboratorio de Convivencia	Local Government: Municipality of Monterrey; Academia: ITESM, Instituto Tecnologico de Estudios Superiores de Monterrey, Facultad de Arquitectura de la UANL, Universidad Autónoma de Nuevo León. Private Sector: Axtel, Arca Continental Coca-Cola, CAINTRA, Cámara Nacional de la Industria de la Transformación, CANACO, Cámara Nacional de Comercio, Ecotono Urbano; Ecosystem of Innovation and Entrepreneurship: Reto Naranya, Hackerspace, Consejo de Software de Monterrey, ACM Monterrey, Co-Working, Viral, OpenData MTY, Yo Propongo, Ashoka y Vertebra.	20	70	9	Web-Alleys, actual transformation of public spaces, with urban design and free WiF, in Barrio Histórico, Historic District Downtown Monterrey.
Youth and Financial Inclusion	ONU-Habitat El Salvador & AECID, Agencia Española de Cooperación Internacional para el Desarrollo	International: AECID, Agencia Española de Cooperación Internacional para el Desarrollo, Embajada de España en El Salvador, Centro Cultural de España. Local Government: Ministerio de Educación, Ministerio de Economía, Instituto de la Juventud de El Salvador. Academy: Universidad Tecnológica, Universidad Francisco Gavidia. Private Sector: Telefónica El Salvador, TIGO, SVNet, CASATIC, Cámara Salvadoreña de Industrias de Tecnologías de Información y Comunicaciones. Social Sector: CONEXIÓN, Asociación Conexión al Desarrollo de El Salvador, Yawal, INSERT.	16	70	6	Winning App remained as prototype as scholarships were not delivered by sponsors.
Youth and Hard & Soft Cities	Televisa & Codeando México	Local Authorities: none. Academy: Universidad Politécnica del Valle de México. Private Sector:Televisa. Social Sector: Codeando México.	3	90	3	Product developed by students at the Universidad Politécnica del Valle de México. Environmental Monitoring Agency in Federal District has manifested interest to apply it as counterpart to its official air quality monitoring network.
Youth and Urban Resilience	Museo Casa de la Memoria	International: UN-Habitat City Resilience Profiling Program, UN-Habitat Youth Fund, Barcelona Supercomputing Center. Local Government: Alcaldía de Medellín, Ruta N, UNE, Dirección de Equidad y Políticas Demográficas y FOPAE, Fondo de Prevención de Emergencia de la Alcaldía de Bogotá. Academy: Universidad EAFIT, Centro de Estudios Urbanos y Ambientales, Universidad de Antioquia, Instituto de Antioquia, Cátedra UNESCO Sostenibilidad. Private Sector: anonymous. Social Sector: MIT-Harvard Club de Colombia, Casa Tres Patios, Un/loquer, PlatoHedro, Hackerspace, Laboratorio de Convivencia de Monterrey.	20	70	7	Prototype is under development.
Tech for Good	eMerge Americas	Local Authorities: Miami-Dade County. Academy: University of Miami. Private Sector: Medina Capital, Microsoft. Social Sector: SecondMuse.	4	200	33	Prototype is under development, and pattent registration underway.
Block by Block at Aldea Digital 2014	Telmex	International: UN-Habitat. Local Authorities: GDF, Gobierno del Distrito Federal, Labpc, Laboratorio para la Ciudad. Academy: UNAM, Universidad Nacional Autónoma de México. Private Sector: Telmex. Social Sector: Minecraft Community of Gamers.	5	7,429	431	Children projects are ready to be studied as a research thesis for Urban Planning Degree by volunteers that helped during Aldea Digital. City Budget to be allocated for construction of 2015 edition.
	Totals		69	8029	502	

Table No. 1. City Changer Institutions involved,

Telmex, the largest Mexican telecommunication carrier, transformed the results of the Hackathon into an API called "+xmiciudad", to be launched 21st of August 2014 in 31 Mexican State Capitals, and to continue, in a second phase, along 98 additional Mexican cities where the UN-Habitat City Prosperity Index is about to be computed.

The original Hackathon became an entry point for a public-private-people partnership that although it took two years to complete, brought along, as first related benefit, the creation of an online training

program for capacity building on urban development, that shall bring together the accumulated knowledge of UN-Habitat with the digital resources of the company to support public officials, civil society and academia.

The urban challenge notion of CCLs and the UN-Habitat Block by Block initiative were applied to a Children Competition within Aldea Digital 2014.

Organized by Telmex, it is the world largest digital inclusion event at the Zocalo of Mexico City. This year it broke three Guinness World Records with 258,986 visitors in two weeks, and 177,517 trainees in 44 open workshops where more than 35,000 participants, of all ages and socio-economic conditions, used a computer and e-mail for their first time[xxx].

Figure 3. Block by Block Competition at Aldea Digital 2014

UN-Habitat Block by Block initiative teaches children, through playing with Minecraft, how to build public space. With Telmex and Laboratorio para la Ciudad, GDF, Government of the Federal District, we proposed *Reto Tlaxcoaque: "Juega y Cambia tu Ciudad"* (in spanish: "Tlaxcoaque Challenge: Play and Change your City"). Plaza Tlaxcoaque at the Historic Center of Mexico City was digitally modeled in Minecraft and kids were asked to propose designs to improve its conviviality, security and playfulness by using the Minecraft palette. The prize four xBox One. The response unexpected.

Figure 4. Block by Block Competition at Aldea Digital, Reto Tlaxcoaque

7,429 children came to play, 1,438 proposed ideas, and 431 projects were completed. We were overwhelmed by the response, and learned how strong the interest of citizens can be when a concrete challenge is presented within a controlled ecosystem of interaction, with pre-defined tools -or games- available to construct solutions.

In CCLs we have had smaller number of contestants because participation is restricted to an older, multidiscipline and creative crowd: 600 competitors and 65 Apps prototypes. A major impact has been in the response of 69 institutions, willing to support CCLs, from all sectors: international agencies, local government, private sector, academy, and ONGs, see Table No. 1.

Solutions and Recommendations

CCLs can help democratize the efficient management of the city, create a global urban innovation ecosystem, promote the talent of young people to develop socially relevant urban technologies, foster entrepreneurial skills and strengthen economic sustainability of their initiatives, facilitate the insertion of new high-tech companies into their social fabric, and promote the application of new tools in the planning, construction and operation of cities.

Their impacts can be in:

1. Technology. Create *Urban Innovation Centers* for active citizenship. These creative spaces shall combine living labs, places for co-working, education and training; arenas for cooperation and competition; posts for discovery and reward of juvenile talent; and sites where new citizen leaders can emerge.

2. Entrepreneurship. Develop and capitalize on new technologies emerging from these centers, with *Entrepreneurship Environments* that foster multidisciplinary teams, incubation, acceleration and financing of new high-tech companies.

3. Collaboration. Promote *Public-Private Partnerships* to address technological opportunities with new synergies of active education; information and dissemination channels; confluence of international and national networks of cities, technology and social action; committees of international experts; Forum for international standards of digital cities.

4. Market. Promote *Urban Technology Development Agencies* for new markets in urban management policies and services; platforms for applications development; business partnership opportunities; and local managers of City Protocol, the International Protocol on functional criteria and best practices for Smart Cities.

Overall, the City Changer Labs facilitate the participation of young people to become active citizens in the democratic transformation of their cities' urban management and improvement of the local digital and knowledge economy. The developed tools intend to be fully integrated into their urban environment, to provide better solutions to the current urban problems and issues.

Future research or operational directions

The rationale for future development of City Changer Labs and Digital Civies lies in the actual context cities. Cities, throughout the mobile world, have now good quality communication infrastructure waiting for innovative ways to make a positive impact on citizens. There is an ever growing resource of leadership and locally available capacity for technology-based programming. There are real opportunities to turn collective innovation into practical actions. Everyday increases the potential for cross-departmental collaboration in city management. Public-private partnerships and new methods or citizen engagement can make civic-oriented technology to flourish and scale. With these new types of partnerships and collaboration we are at a turning point to create more resilient cities by focusing on equity, inclusivity and the needs of urban population[xxxi].

For the future we see two possibilities for Digital Civics, a collective research and development of urban issues, citizen engagement and collective action through replicas of platforms, ecosystems, and interfaces of governance in different fields of urban knowledge and activities; and a cross-cutting standardization of measurements, categories and models, to integrate Open Civics with Open Culture.

CONCLUSION

City Changer Labs can contribute to the mission of UN-HABITAT to promote active citizenship through urban centers of technological innovation and youth-led development.

The social relevance of Digital Civics consists in making knowledge open and collaborative, interactions possible in diverse tool-making environments, with governance always in control of public rule-making opportunities.

REFERENCES

Bannon, L, "What is Activity Theory?", Retrieved August 19, 2014 from, http://carbon.ucdenver.edu/~mryder/itc/activity.html

Ben Attar, D. & Campbell, T. (2012). *ICT, Urban Governance and Youth*. Nairobi, Kenya. UN-Habitat Report 4: Global Youth-Led Development Report Series.

Block by Block Competition in Aldea Digital at Zocalo, Mexico DF, brought 7,500 children to play with Minecraft to learn how public space is built, and collected 431 children projects for Plaza Tlaxcoaque in Downtown Historic District. See http://blockbyblock.org/post/84516320603/aldea-digital-block-by-block-winners-announced

Castells, M. (2008). "Space of Flows, Space of Places: Materials for a Theory of Urbanism in the Information Age". In Tigran Haas (ed.) *New Urbanism and Beyond: Designing Cities for the Future* (pp. 314-321). New York, NY: Rizzoli.

Euromonitor International (2012). "Special Report: The World's Youngest Population", Retrieved July 10, 2014 from, http://blog.euromonitor.com/2012/02/special-report-the-worlds-youngest-populations-.html

Global Green Growth Institute, "Global Green Growth Knowledge Platform", Retrieved August 19, 2014, from http://www.greengrowthknowledge.org/about-us

Govela, A. & Massarrat N. (2014). *Digital Civics Initiative, Improving Cities through Innovation, Collaboration and Technology*. Gifted Citizen Proposal for City of Ideas 2014, Puebla, Mexico.

GitHub, "Build software better, together. Powerful collaboration, code review, and code management for open source and private projects". Retrieved July 10, 2014 from https://github.com

Internet World Stats (2014)"Usage and Population Statistics". Retrieved July 10, 2014 from http://www.internetworldstats.com/stats.htm

Itto, J. (2014). "Want to innovate? become an 'now-ist'". TED2014, Retrieved July 10, 2014 from http://www.ted.com/talks/joi_ito_want_to_innovate_become_a_now_ist?utm_source=t.co&awesm=on.ted.com_e0IBd&share=1a85706e51&utm_content=roadrunner-rrshorturl&utm_campaign=&utm_medium=on.ted.com-none

ITU (2011). "The World in 2011. ITC Facts and Figures". Retrieved July 10, 2014 from http://www.itu.int/ITU-D/ict/facts/2011/material/ICTFactsFigures2011.pdf

Kaptelinin, & A., Nardi, B.A. (2006). *Acting with Technology: Activity Theory and Interaction Design*, Cambridge, Massachusetts: The MIT Press.

Leckart, S. (2012) The Hackathon Is On: Pitching and Programming the Next Killer App. *Wired Magazine*. 02.17.12. Retrieved July 9, 2014 from http://www.wired.com/2012/02/ff_hackathons/all/1

Levy, S. (2010), *Hackers*, Sebastopol, California. O'Reilly Media.

Medellin Declaration, Seventh World Urban Forum (2014). "Equity as a Foundation of Sustainable Urban Development". Retrieved July 10, 2014 from http://worldurbanforum7.org/Media/Default/PDF/Medell%C3%ADn%20Declaration.pdf

Neirotti, P., De Marco, A., Cagliano, A. C., Mangano, G., & Scorrano, F. (2014). Current trends in Smart City initiatives: Some stylised facts. *Cities*, *38*, 25-36.

United Nations (2011). "World Urbanization Prospects, The 2011 Revision". Retrieved July 10, 2014 from http://esa.un.org/unup/pdf/WUP2011_Highlights.pdf

United Nations (2010). *World Programme of Action for Youth*.Retrieved July 10,2014 from http://www.un.org/esa/socdev/unyin/documents/wpay2010.pdf

United Nations (2010). "Youth Participation in Development. Summary Guidelines for Development Partners". Retrieved July 10, 2014 from http://social.un.org/youthyear/docs/policy%20guide.pdf

United Nations (2011). "World Urbanization Prospects, The 2011 Revision", Retrieved July 10, 2014 from http://esa.un.org/unup/pdf/WUP2011_Highlights.pdf

UN-Habitat, I'm a City Changer Campaign(2011), Retrieved July 10, 2014 from http://imacitychanger.unhabitat.org

United Nations (2012). "World Population Prospects: The 2012 Revision". Retrieved July 10,2014 from http://esa.un.org/unpd/wpp/Excel-Data/population.htm

United Nations (2012). "World Population Prospects: The 2012 Revision". Retrieved July 10,2014 from http://esa.un.org/unpd/wpp/Excel-Data/

United Nations, "Sustainable Development Knowledge Platform", Retrieved August 19, 2014 from http://sustainabledevelopment.un.org

World Bank Live (2011). "Realizing the Demographic Dividend: Challenges and Opportunities for Ministers of Finance and Development", Retrieved July 10, 2014 from http://live.worldbank.org/realizing-demographic-dividend-challenges-and-opportunities-ministers-finance-and-development

FOOTNOTES

[1] Kaptelinin, A., and Nardi, B.A. (2006). *Acting with Technology: Activity Theory and Interaction Design*, Cambridge, Massachusetts: The MIT Press.

[1] United Nations (2011) "World Urbanization Prospects, The 2011 Revision". Retrieved July 10, 2014 from http://esa.un.org/unup/pdf/WUP2011_Highlights.pdf

[1] [3] Castells, M. (2008). "Space of Flows, Space of Places: Materials for a Theory of Urbanism in the Information Age". In Tigran Haas (ed.) *New Urbanism and Beyond: Designing Cities for the Future* (pp. 314-321). New York, NY: Rizzoli.

[1] Neirotti, P., De Marco, A., Cagliano, A. C., Mangano, G., & Scorrano, F. (2014). Current trends in Smart City initiatives: Some stylised facts. *Cities*, *38*, 25-36.

[1] Medellin Declaration, Seventh World Urban Forum (2014). "Equity as a Foundation of Sustainable Urban Development". Retrieved July 10, 2014 from http://worldurbanforum7.org/Media/Default/PDF/Medell%C3%ADn%20Declaration.pdf

[1] Govela, A. & Massarrat N. (2014). *Digital Civics Initiative, Improving Cities through Innovation, Collaboration and Technology*. Gifted Citizen Proposal for City of Ideas 2014, Puebla, Mexico.

[1] United Nations (2012). "World Population Prospects: The 2012 Revision". Retrieved July 10,2014 from http://esa.un.org/unpd/wpp/Excel-Data/population.htm

[1] United Nations (2011). op. cit

[1] ITU (2013). "The World in 2013. ITC Facts and Figures". Retrieved August 19, 2014 from http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013-e.pdf

[1] Internet World Stats (2014)"Usage and Population Statistics". Retrieved July 10, 2014 from http://www.internetworldstats.com/stats.htm

[1] United Nations (2010). *World Programme of Action for Youth*.Retrieved July 10,2014 from http://www.un.org/esa/socdev/unyin/documents/wpay2010.pdf

[1] United Nations (2010). "Youth Participation in Development. Summary Guidelines for Development Partners". Retrieved July 10, 2014 from http://social.un.org/youthyear/docs/policy%20guide.pdf

[1] Euromonitor International (2012). "Special Report: The World's Youngest Population", Retrieved July 10, 2014 from, http://blog.euromonitor.com/2012/02/special-report-the-worlds-youngest-populations-.html

[1] World Bank Live (2011). "Realizing the Demographic Dividend: Challenges and Opportunities for Ministers of Finance and Development", Retrieved July 10, 2014 from

http://live.worldbank.org/realizing-demographic-dividend-challenges-and-opportunities-ministers-finance-and-development

[1] Ben Attar, D. & Campbell, T. (2012). *ICT, Urban Governance and Youth*. Nairobi, Kenya. UN-Habitat Report 4: Global Youth-Led Development Report Series.

[1] Levy, S. (2010), *Hackers*, Sebastopol, California. O'Reilly Media.

[1] Leckart, S. (2012) The Hackathon Is On: Pitching and Programming the Next Killer App. *Wired Magazine*. 02.17.12. Retrieved July 9, 2014 from http://www.wired.com/2012/02/ff_hackathons/all/1

[1] Manifesto for Agile Software Development. Retrieved July 10, 20144 from http://agilemanifesto.org

[1] Itto, J. (2014). "Want to innovate? become an 'now-ist'". TED2014, Retrieved July 10, 2014 from http://www.ted.com/talks/joi_ito_want_to_innovate_become_a_now_ist?utm_source=t.co&awesm=on.ted.com_e0IBd&share=1a85706e51&utm_content=roadrunner-rrshorturl&utm_campaign=&utm_medium=on.ted.com-none.

[1] Castells, M. (2008). op. cit.

[1] Kaptelinin, A., and Nardi, B.A. (2006). op. cit.

[1] Bannon, L, "What is Activity Theory?", Retrieved August 19, 2014 from http://carbon.ucdenver.edu/~mryder/itc/activity.html

[1] United Nations, "Sustainable Development Knowledge Platform", Retrieved August 19, 2014 from http://sustainabledevelopment.un.org

[1] Global Green Growth Institute, "Global Green Growth Knowledge Platform", Retrieved August 19, 2014, from http://www.greengrowthknowledge.org/about-us

[1] See http://blockbyblock.org/post/84516320603/aldea-digital-block-by-block-winners-announced

[1] Govela, A. & Massarrat N. (2014). op. cit.

[1] UN-Habitat, I'm a City Changer Campaign(2011), Retrieved July 10, 2014 from http://imacitychanger.unhabitat.org

[1] Govela, A. & Massarrat N. (2014), op. cit.

[1] GitHub, "Build software better, together. Powerful collaboration, code review, and code management for open source and private projects". Retrieved July 10, 2014 from https://github.com

[1] Guinness World Records (2014). "Telmex logra tres records en Aldea Digital". Retrieved July 26 from http://www.guinnessworldrecords.es/news/2014/4/telmex-logra-tres-records-en-aldea-digital-2014-57239/

[1] Govela, A. & Massarrat N. (2014). op. cit.

Dumb Phones, Smart Youth: Impact of ICT & Mobile Platforms on Youth Engagement in Local Governance

Daniella Ben-Attar

Israel (daniella.benattar@gmail.com)

Tim Campbell

USA (TimCampbellPhD@verizon.net)

Abstract

This purpose of this paper is to explore the current and potential impact of mobile platforms on civic engagement of urban youth in local governance in developing countries. The population of youthful actors is at the forefront of a mobile ICT revolution in cities of the developing world. The paper aims to provide insight into how "narrowband" mobile platforms are being used by and for youth to overcome social, political and economic exclusion to begin driving positive change in their communities. The authors draw on 50 case examples to illustrate how mobile platforms accelerate youth civic engagement, transform interaction with local officials, and exert pressure on local and national governments. The chapter identifies trends, spots barriers and opportunities, and indicates what local and national governments can do to foster and strengthen democratic participation of young citizens by means of mobile platforms.

Keywords: ICT, mobile, youth, urban governance, engagement

INTRODUCTION

Two global trends—the so-called "youth bulge" and the "mobile miracle"—are having dramatic and transformative impacts on governance, particularly local government, across the world. The youth bulge refers to the 15-24 year cohort (29 by some definitions), the largest cohort in history, numbering more than 1.2 billion. At present, 87 percent is in developing countries, and a majority of young people lives in cities. An estimated 60 percent of all urban dwellers will be under the age of 18 by 2030 (UN-HABITAT 2012). Despite their growing number, youth are largely excluded from participation in local and national decision-making, leaving them socially and politically marginalized. Many youth live in informal

settlements where opportunities for dialogue with governments are scarce. At the same time, young people have been at the forefront of the rapid developments in ICT, particularly the mobile miracle.

The mobile miracle refers to the explosive growth of hand-held cell phones, particularly low-end mobile phones, which, in contrast to modern smartphones, are limited in capabilities and are thus often referred to as "dumb phones." The growth of these devices over the past decade has been nothing short of spectacular. Penetration rates are 96 percent globally and 89 percent in developing countries (ITU 2013). Youth are at the center of these developments, both as drivers and consumers of technological innovation. They are almost twice as networked as the global population as a whole, with the ICT age gap more pronounced in least developed countries where young people are often three times more likely to be online than the general population (Pew Research, 2014).

The confluence of these two trends has many social, political and civic impacts. This chapter will explore how the widespread use of mobile devices among the youth cohort is beginning to transform civic and political relationships of youth with their local governments. Few need to be reminded of the role mobile phones played in the Arab Spring, where a largely youthful population participated massively in political communication and unrest. Similar awakenings are taking place in communities around the globe as youthful citizens are putting "dumb" technological tools to effective use in issues that affect them, such as jobs, education, health and accountability of local government.

BACKGROUND

Much of the literature on ICT and local government has concentrated on e-portals and access by citizens to government services, such as licenses, permits, and records. These early developments were characterized by the generic term "e-government", which concentrated on increasing the efficiency of government operations and services by means of the internet. Backus mapped out the main inter-net based applications in 2001 (Backus 2001). Later literature distinguished between this (e-government) and e-governance, a broader concept including the use of ICT by various actors in society to enhance citizen engagement in expressing voice, making choices, and shaping political institutions (Palvia and Sharma, 2007). The very fact that Backus expressed an implicit "direction" in the linkage between citizens and the governed—emphasizing the centrality of government—reveals how quickly relationships have changed since the turn of the Millennium. Subsequently, academic studies and practitioners began to reflect a shift not just from citizen-centric but also citizen-driven electronic government (UN-HABITAT 2012). Finally, when discussing these trends in a developing world context, the term m-governance (mobile governance) has been used to reflect the limitations in infrastructure and rapid uptake of mobile technologies alongside the development of innovative mobile applications utilizing ICT for the public good (OECD/International Telecommunication Union 2011). Recent literature has focused on the role of mobile-enabled social media in support of governance (DANIDA 2012).

While literature on youth and ICTs has received significant attention, not much scrutiny has been directed toward urban youth with mobile devices in the developing world. The first significant study of this issue was published by ITU in 2013, presenting a model to measure the "digital native" population worldwide, analyzed by region, development level, income grouping and educational enrolment levels (ITU 2013). "Digital natives" are defined as the population of networked youth, aged 15-24 years, with five or more years of online experience. The findings highlighted a need for research into how growing up in a digital

age is impacting the way young citizens in developing countries think, learn and engage in civic activity. While groundbreaking in nature, the ITU study limited its definition of online experience to internet usage, thereby leaving out the mass numbers of young mobile phone users and the momentous impact that these simple devices are having in their daily lives. Where in-depth attention is given to how mobile phones are impacting developing countries in general, and governance in particular, these analyses have not applied a specific focus on youth issues and youth engagement in this context (World Bank 2012). Indeed, the literature has taken a siloed approach, addressing trends of ICT, local governance and youth engagement separately.

This chapter attempts to examine the intersection of these areas to consider how ICTs, particularly mobile usage, affects youth engagement in local governments of the developing world.

METHODS AND CASES

A body of empirical data of 50 cases was developed for the present review. See Annex I. Cases were drawn from reviews of literature and web searches, screening for a youth dimension in applications of ICT that affect local governance. Cases were confined to sponsored and spontaneous uses of technology—covering mobile phones, apps and software, mostly but not exclusively narrowband and sometimes in conjunction with other technologies, including radio and internet. Thirty eight of the cases were discovered by means of internet search. An additional 12 cases were uncovered in connection with previous or present work with the World Bank, UN, NGOs or other sources. As part of the field work, a total of 26 interviews were held by phone or in person with youth, local government staff and officials, activists and practitioners in related fields, 12 of the interviews with persons directly involved in the cases reviewed (Annex II). A draft document was then shared with youth and practitioners in consultations in order to obtain further input before finalizing the analysis (Annex III).

In all instances, the cases link young citizens, and in about half the cases citizens of all ages, in some way to the practice or policy of local governments. For the most part, the cases are drawn from experiences outside of the developed, post-industrial world. Only four cases are drawn from developed countries, but about a fifth are global in nature, i.e., in the public domain and available to users anywhere on the globe.

We can make no claim that the cases considered in this analysis are in any way representative of the myriad of applications that might be found of youth-related ICT on governance. At the same time, there is no obvious bias in the method by which this data was collected, although geographical representation is uneven, favoring Africa and Asia over Latin America, Eastern Europe and countries in the post-industrial world.

Key Characteristics of Cases

The case experiences are all projects or practices organized by a sponsor, usually a government, a youth group, or other NGO. Government and youth groups account for two thirds of the "sponsors" or organizers of the case examples. The rest are other NGOs or businesses, for instance, telecom providers. Viewed from the perspective of target group or objective, more than half were aimed at youth, and the second largest share, nearly 40 percent, was aimed at citizens in general. The large number of ICT initiatives sponsored by youth groups reflects the creative and dynamic nature of ICT in the hands of youth. Young users are energetic and creative in exploring ways to connect with others in relationship to

community and local government. They also lend credence to the notion that youth are in many ways the leaders of ICT governance initiatives for all citizens – innovating technology, generating content and developing applications. As such, inquiries into this issue must go beyond the basic question "how can ICTs improve urban governance for youth?", and ask "how can youth help harness ICTs to improve urban governance for all?"

We turn now to examine how each of the cases relates to four areas of ICT-enabled governance, emphasizing as much as possible, the local level of government. We adopt a framework defined by UN-HABITAT that relates ICT to key features of urban governance. The framework, presented in UN Habitat (2012)[xxxii] is a practical and results-oriented approach and has the advantage of applying a youth lens to key domains of ICT-enabled governance. The framework consists of four elements:

1) Balance of inclusiveness and responsiveness when using technology

2) Engaging young citizens as partners in urban governance

3) Public openness through technology

4) Impact on outcomes for youth

The reader should note that often the cases reviewed in this study are multi-dimensional in nature and can easily represent more than one of the four areas. Notwithstanding this possible methodological "noise," the cases indicate that applications of ICT and youth cluster primarily in two key areas, inclusiveness and engagement. See Table 1, below.

Area of Governance	Occurrence
1 – inclusiveness & responsiveness	11
2 – engaging young citizens	23
3 – public openness	10
4 – outcomes	6
TOTAL	50

Table 1: Case Impact by Area of Governance

The distribution in the above table reflects a logical outcome of ICT, particularly our focus on mobile platforms, in the hands of youth. Mobile platforms with such applications as social networking naturally favor horizontal linkages of exchange among peers. Areas 1 and 2 also intrinsically involve dimensions of connectedness, communication and exchange. On the other hand, areas 3 and 4 refer to somewhat more internal aspects of local government, ones that require deeper engagement—by both citizens and government— to develop and share knowledge about internal processes and to improve government services. We now turn to a more detailed, qualitative analysis of our principal findings below organized according to the four areas of governance outlined.

FINDINGS IN FOUR AREAS OF ICT-ENABLED GOVERNANCE

1. Balancing Inclusiveness & Responsiveness when Using Technology

ICTs are enabling greater inclusion of youth viewpoints in governance and in some cases new or more responsive services. These developments are linked to the way in which young people are reshaping civic

discourse by means of ICTs, particularly mobile platforms. New avenues are being created to increase youth voice, young people are being empowered to provide user generated information to policy makers and a wider spectrum of youth is being engaged.

Pervasiveness of mobile phones increases the "voice" of youth and puts a premium on responsiveness on the part of local governments. This phenomenon was not only non-existent as recently as a decade ago; it also represents a potentially momentous change in government-youth relationships. As a veteran youth leader from Kigali noted "A few years ago, a leader would usually go down to the field one day and go back to the same place only one year later. And in between there would be no way to reach him or make him accountable. Now the bond with social media is reaffirmed on a daily basis. Leaders can't just promise things and disappear."[xxxiii] The increased volume of traffic puts pressure on governments that is increasingly difficult to ignore. Instant communication and social networking trends offer young people unique and unprecedented tools to leverage opinion and political influence.

Our findings suggest that increased responsiveness on the part of early adopters in government (local and national) gives young people new access to leaders and leadership positions. In many cases, electronic communications shortcut conventional modalities of citizen-municipal communication, obviating the slow and cumbersome personal appointments and official meetings in municipal offices. Today an ordinary young person can interact with government offices, see rapid results of appeals and even communicate directly with the president of a country and get a response. This is something that was unthinkable just a few years ago. Mayor Jerry Silaa of Ilala Municipal Council, Dar es Salaam City confirms the impact that social media has had on his own agenda: "I can assure you that 20% of the events I attend come from online social networks. If used well, ICT can be a very good method to engage the community – but it should be used as a means to an end, not as an end in and of itself."[xxxiv]

Mobile phones can also improve the quality and quantity of user-generated information in a way that transforms understanding of the status and needs of youth by public officials and local government bureaucrats. Conversely, youth groups are more aware of the limitations and possibilities of local governments in providing services. User-generated content among youth is a key ingredient to this process. In Uganda, a UNICEF supported program run by local youth organizations entitled Ureport has created a platform for strengthening communication and dialogue around core development issues through SMS and the radio. With over 89,000 Ugandans signed up and participating as of March 2012, young "social monitors" are sent regular polls, gather data on community services and issues, and receive useful facts for action and advocacy - providing the "pulse" of Ugandan youth.[xxxv]

Mobile devices allow for the effective scaling up participation by the young. Young leaders can reach unprecedented numbers of youth with their projects and programs, including the previously unengaged and disadvantaged, giving a voice to people who feel they have yet to be heard. For instance, ICT opens new channels for youth with disabilities, whether it be employment, education or governance.[xxxvi] Mobile platforms also lower what we call the "threshold of entry," i.e., they help those who are less disposed to speaking out and those in younger age groups express themselves more easily than in face-to-face meetings in which they often feel intimidated or insecure.[xxxvii] In addition, community mapping exercises illustrate the power of ICT tools to draw in a wider circle of activists, spreading to new and sometimes unforeseen impacts in health, security and community cohesion.

Radio still remains the most effective tool for reaching citizens en masse, particularly when it comes to disadvantaged and poorer communities. Many cases demonstrate an effective combination of radio with

the mobile phone for including wider sections of previously unengaged youth in civic activity. In Nepal, the Voices of Youth project enables teens to use text messages (SMS via toll free mobile phone number) for self-expression and peer-to-peer support broadcast on radio programs that are heard by 6.3 million youth. Youth are invited to speak or text on a range of topics. The station has received over 33,000 messages since the launch, which comes from approximately 4,000 listeners. The toll free initiative connects the website, mobile and the radio network.[xxxviii]

The mobilization of youth and amplification of youth voice through ICTs can also influence decision makers to create new channels for offline youth engagement. The Khanyisa Youth Network in South Africa established a youth-led mobile radio program connected to social media and mobile phones reaching over 300,000 people. The broadcasts have helped sensitize local government to youth needs, challenges and aspirations, eliciting new interactions and outcomes. For example, a radio discussion on job opportunities revealed that many young people are unable to find work because they drop out of school and do not have sufficient funds to continue their studies. The Municipality of Cape Town responded by issuing 50 scholarships to young people who would like to continue their studies and lack the necessary funds. This first response led to subsequent deeper engagement by appointing youth to serve on municipal committees and utilization of the youth network to disseminate information on municipal services to young people.[xxxix]

In sum, cheap and ubiquitous cell phones and social media create a daily bond among young citizens and between youth groups and leaders. The extent to which new voices raised and opinions expressed reaches the inner workings of local government in examples like those cited here requires further investigation and assessment. But it seems clear that the velocity of messaging leads to a rupture in the traditional codes between youth and government.

2. Engaging Young Citizens as Partners in Urban Governance

The upsurge in mobile phone usage has opened new avenues through which to collaborate and take action with local government. In the first place, mobile phones has significantly increased political awareness and raised activism among young users. As one youth leader in Tanzania noted, "There is a huge difference since 2005, when young people were not very aware of their rights or their opinions regarding what should be done in their country. The spread of mobile phones has made youth more politically aware and active; most youth have social media enabled mobile phones and are using these platforms to access information and voice their opinions."[xl]

Youth are leading the way in utilizing technology for sharing information and generating content relevant to their lives. One expression of this trend is the development of youth-to-youth ICT platforms connecting social media, internet and mobile phones. Such platforms can serve as a catalyst for civic engagement, encouraging young people to take a proactive role in building awareness regarding issues affecting their lives, make informed decisions and take action. For example, young leaders in Tanzania have established an online forum, vijanaforum.org (translated as "youth forum.org"), as a one stop information center for youth, as well as an interactive discussion forum. Information necessary for the positive development of young people is posted including documents, reports, news and audio files – largely accessible through mobile phones.[xli] Young leaders in Kenya see the access of information as an empowering agent allowing youth to "hold their head high and walk into a meeting with government officials. Knowledge is power, power is self-esteem."[xlii]

There are signs that ICTs are beginning to provide new, constructive ways for youth to be involved in governance and government leaders to make change. In some cases, the engagement is direct and immediate. Striking examples from Rwanda, Kenya and India feature authorities reacting quickly, sometimes from the highest office, to complaints or requests posted by young activists through social media who, in turn, were energized by the attention and the responses they received. As a youth leader from Kenya noted, "social media is a highway to the politicians, taking them down from their high position and bringing them nearer to us…especially when you get an answer."[xliii] Young leaders in Sri Lanka are training municipal staff in ICT skills and creating new ICT platforms for citizen-government local interaction. This is part of a broader UN-HABITAT supported program in Kandy City entitled YES - City of Youth

Youth are also engaged through election monitoring and watchdog roles. The Ersod Project in Yemen trained over 1,000 youth to monitor the February 2012 elections and provided a means for reporting election violations, irregularities or suspicious activity using SMS text messaging. A committee was formed to investigate reported problems and incidents were posted on an interactive map that allowed individuals to track the election online from the website.[xliv] Social media is increasing youth participation in election campaigning and engagement. The recent election in India mobilized a large number of first-time voters through social media in what was referred to as a "youthquake" that could revolutionize "forms of political engagement, the expectations from government and the political landscape itself."[xlv]

The use of collaborative technologies is challenging traditional notions of democratic involvement by allowing youth greater opportunities to express their political will. Youth feel that they have gained more power through these tools, and that governments are beginning to show signs of being more responsive and accountable. For example, two 23-year olds from Latvia who were frustrated by their inability to participate in the political process built an e-petition system where Latvians could submit and support proposals for new laws and other political changes. The government agreed to look seriously into any petition that got a certain amount of popular support on the platform, and according to some sources, the system has been used by at least 20% of the Latvian population.[xlvi]

ICTs can engage and motivate youth to get involved in developing and learning about their communities and thus forge increased commitment and empowerment. For instance, citizen journalism, user-generated content, and neighborhood videos and music are attractive ways to get youth engaged in positive local development processes. Youth have been involved in urban planning through creative uses of digital platforms such as the "Block by Block" project. This initiative creates real-world environments in Minecraft, a popular online game, and lets the young people that live in these environments step in and show urban planners what they would like see changed. Our interviews suggest that these activities can have a positive impact on decision-makers that begin to view youth as assets in local development that can be leveraged to help achieve municipal objectives.

Current ICT-enabled communication between government and citizens is already having an impact on youth, making them feel more connected, engaged and heard. Even when ICT-based government initiatives are not youth-focused, young people perceive such communication as being directed primarily to their age group. As social media is considered "youth territory", they feel that the very use of ICT channels demonstrates the government's intention of reaching out to young people.

3. Public Openness through Technology

The negative impacts of corruption affect young people today, as well as their outlook for the future. The cases offer several striking examples of the need for youth to channel their creativity and innovation in the fight against corruption. ICT can empower young citizens to engage constructively in the development of new mechanisms to increase accountability and transparency, thereby contributing to good governance.

The majority of ICT applications and tools developed to follow public officials, monitor governance processes and increase public access to information is not necessarily youth-focused, but appears to be youth-driven. It seems that young technology entrepreneurs and software developers are those that are coming up with these tools and bringing them to the wider public. Young Kenyans have developed successful applications geared toward making open data information more understandable, user-friendly, and usable, including edWeb, Virtual City, and Mzalendo. In the Kyrgyz Republic, the Poltimer website is being used to track the promises made by politicians during elections once they are in office. Citizens can post online those promises that they heard elected officials make in public, and these commitments are then verified, categorized and monitored by the Politmer team through the site.[xlvii]

The spread of mobile phones has also empowered youth to mobilize against corruption taking the form of SMS campaigns. For example, Transparency International Zimbabwe launched a program through which people report on bribery and corruption by sending an SMS that reaches a center that processes the information and "takes appropriate steps to assist clients."[xlviii] This type of SMS platform is demonstrative of the power of basic mobile phones in governance processes in a country where Internet penetration is less than 12 percent but mobile phones are accessible to most.

Young people are also harnessing the internet to share ideas and experiences across borders in their common fight for accountability. One of the most well-known platforms is the Global Youth Anti-Corruption Network (GYAC), bringing together youth organizations, journalists and musicians from over 45 countries to fight corruption through an online social network, video conferences and face-to-face events.[xlix]

As with other ICT-enabled governance applications, it is clear that online anti-corruption programs cannot replace traditional safeguards of good governance. Rather, they serve as a tool for increasing public participation in the fight for accountability and transparency and offer new opportunities for enhancing progress in these areas. This has particular significance for youth, who through ICTs are "sidestepping ingrained social hierarchies based on the principle of seniority"[l].

4. ICT Impact on Outcomes for Youth

As a large part of the population, youth benefit from general ICT –enabled services implemented by local governments such as administrative measures, transportation and safety. Platforms such as Huduma in Kenya offer mobile-based communication avenues for citizens to voice, SMS or email service needs or comments directly to authorities and service providers.[li] Similar platforms and services exist in Peru and Mexico.[lii] However, the research shows a dearth of youth-focused services. Youth face unique challenges that are specific to their stage in the life cycle and they can benefit from ICT services to enhance their opportunities in these areas. Examples might include ICT services for job placement, job readiness, entrepreneurship and e-learning. In Indonesia, the Municipality of Surabaya provides

internships for high school and university students, offering an opportunity to gain experience with ICT while at the same time enabling participants to help the municipality.[liii]

Local government ICT programs for youth are heavily focused on ICT training. Increasingly, youth require ICT skills as part of their preparation for entering the workforce and participating in the global knowledge economy. Municipalities therefore tend to view ICT services for youth through the lens of economic empowerment, focusing on skills and access. In Kigali, the municipality runs ICT training programs targeting young people. "Business Development Centers" equipped with high speed internet and ICT equipment are being set up in each of the city's three districts as part of a national initiative to cultivate ICT usage.[liv]

Youth organizations often play a role in delivering these services. The Nibyiza Group, a youth NGO in Kigali focusing on ICTs, has trained over 500 youth from 40 cooperatives in the city who are finding employment or creating their own jobs. The program has been run in collaboration with the municipality, enhancing the local government's own services for youth.[lv] In Cape Town, a government program enabling young people to access the internet for free through a designated internet café in the city was not being utilized due to lack of advertising and difficulties in accessing the café's location. Working in cooperation with youth organizations, the municipality was able to raise awareness and address travel challenges to improve such services.[lvi]

KEY BARRIERS & CHALLENGES

Capacity

The relative advantage of young people who have grown up with modern devices has created a "youth-local government ICT gap" that is growing steadily. The interviews provided clear evidence of a disconnect between young activists and older people found in most posts of confidence in local government. Experience with eGovernment services in the past has demonstrated that factors such as technological and human capacity, financial sustainability and bureaucratic resistance can limit the adoption of ICT programs and reduce their long-term impact.[lvii] The Executive Director of MAP Kibera, a young leader from Kenya, observed "the reality is that most people in government are not very strong ICT users, this is something youth do better. We encourage them to blog in and respond, but a lot of them still believe in the traditional form of governance, setting meetings and sitting down together. We are trying to change this."[lviii]

A key challenge reported by youth interviewees is the tendency of governments to limit their view of ICTs and youth to issues of access and skills. While obtaining ICT skills is of key importance in today's market, the potential impact is much broader. Young people are interested in applying their skills to influence social, economic and political arenas. This is something that governments are still slow to understand. Youth-focused ICT programs have emphasized skills, access and infrastructure, with little attention to how these tools can be applied to solve the problems youth are most concerned with.[lix]

Another issue is the volume of traffic that mobile platforms in particular have brought to the citizen-government relationship. Contacts that were once annual or monthly are now daily in frequency, and the pace and volume of exchange will expand with the increased access to ICT devices. Accordingly, there is

a need for greater municipal capacity in terms of staff time, skills and attention to measure, manage and take advantage of the increased flow of communications.

Level of Government

In many cases, ICT-enabled governance in connection with youth and youth affairs has a greater impact at the national level than at the local level. National government leaders are setting the example for engaging directly with citizens (especially youth) through ICTs, although this trend has not been institutionalized. Several case interviews (Rwanda, Tanzania, Gaza, Kenya, South Africa) illustrate activity where national political leaders are using Twitter accounts, blogs, SMSs and websites to engage with their citizens, who by default end up being mostly youth. These instances come to light partly from frustration of young people whose voices are ignored or unheard by elder leaders at the local level (a sentiment echoed by all youth interviewed to date).

President Kagame of Rwanda is a stark example. Several instances were cited describing how the president directly interacted with young people via Twitter and addressed concerns relating to many issues, from police violence towards youth to business ideas for urban tourism. No such possibilities currently exist for these same youth to approach the local authority with these locally-based needs. Even more significant, Kagame merged the national ministries of Youth and ICT in April 2012. This is a groundbreaking move both in terms of ICT and youth, with youth ministries commonly grouped with sports or culture. However, these national developments are not reflected in the policy and practice of local government in Rwanda. The Municipality of Kigali is only beginning to plan for developing ICT tools for government-citizen interaction, with no specific consideration or strategy regarding youth in the context of governance.[lx]

The irony in these findings is that modern mobile tools of communication are serving to strengthen direct communications with the center instead of buttressing connections to decentralized governance. As long as they remain outside the ICT revolution, local governments are vulnerable to intrusions by national government. Local governments often lack policy or budgetary support from the national government when it comes to ICT-enabled governance. Accordingly, pioneering municipal officials find themselves in an uphill battle as they attempt to implement efficient, modern and responsive government.

KEY OPPORTUNITIES

Young Leadership & Youth Capacity

The research points to an emerging trend of young leadership in developing countries that offers an opportunity for the increased use of ICTs for governance and positive engagement with youth. Stakeholders view young leaders in government as the lowest hanging fruit in terms of adopting ICTs to improve local governance for youth. For instance, in Rwanda and Tanzania, it is the younger leaders and city officials that are using ICT tools to reach out and speak directly to youthful constituents using their own vernacular language. They can be identified as key champions in taking forward ICT-enabled urban governance for youth.

The increase in younger people occupying positions of power has contributed to a change in mindsets. The cases suggest that youth are encouraged toward civic action by the presence of strong role models. Also, informants feel that the wider community has begun to view youth differently, seeing them as

leaders and change-makers. Young people are increasingly regarded as innovative, fast, and result-oriented. Removal of this barrier that can advance broader youth-focused change. Furthermore, as the majority segment of the population, avid users of mobile platforms and innovators of new technology, it seems evident that youth will be at the forefront of the move to ICT-enabled governance.[lxi]

This opportunity is already taking shape in the way that young people are lending their skills to enhance the capacity and digital literacy of local governments as demonstrated by cases in Sri Lanka and Rwanda. . In the YES – City of Youth Project in Sri Lanka, an ICT capacity gap among local officials emerged as a major barrier to overall program progress that needed to be addressed: "One major barrier we have is communicating with city officials who like paper and face-to-face interactions. To change this situation, we started training City Council staff on Internet, email, local language ICT and Facebook. We plan to connect city officials to citizens on a Facebook Page."[lxii]

Technology

Communications technologies differ greatly in the opportunities and limitations they pose for youth and local government. Mobile broadband has the most promise to increase internet use in developing countries. While currently only available to a small percentage of people, smartphones are going down in price with steady movement towards inexpensive models that will increase affordable, mobile internet access with concomitant prospects for magnified impact on governance.[lxiii] For example, in South Africa, mobile internet users are dominated by young people with 94% aged between 13 and 34. Dubbed the "Mobile Only Internet Generation", a survey revealed that mobile internet access is the only access method for many users across Africa.[lxiv]

Social networking and user generated content are key online activities for youth, and these are logical entry points for developing effective ICT-enabled governance mechanisms for youth.[lxv] The proportion of Internet users engaging in these activities has reached very high levels, with over 70% of users in Colombia, Brazil and the Russian Federation reporting using the Internet for these purposes.[lxvi] The challenge here is to further understand how to use these platforms effectively for meaningful youth engagement and what conditions are necessary to ensure successful implementation.

AREAS OF FURTHER RESEARCH

In processes—participation, deliberation, priority setting, and monitoring—the cases have shown that ICT has potential to be a powerful enabler to engage youth in governance decisions. However, important questions of how to best use these tools towards youth engagement goals are still being explored. There is a need to examine, expose and further develop best practices in this emerging field in order to promote effective implementation. This can be accompanied by inquiries into how successful programs and strategies can be transferred across regions and methodologies for measuring impact. There are many questions about gender usage, ethics and possible moral hazards on the part of cell phone providers that need attention.[lxvii] More comprehensive age-specific data by region and technology needs to be developed in order to ensure effective, serious policy relating to youth participation through ICTs. Finally, initial findings point to the importance of learning more about how to make ICT-enabled governance applications relevant, attractive and exciting to effectively engage youth and the potential role they can play in designing such applications. [lxviii]

CONCLUSIONS AND POLICY RECOMMENDATIONS

Young citizens introduce an entirely new dimension to ICT and governance. The findings caution that ICT is not the answer to developing democratic institutions for youth in the developing world, but a tool that may contribute to this broader goal. Without structured channels and frameworks for youth engagement in the "physical world", the potential of ICT may fall short both for young people as well as for local government. In sum, this fast-moving field is to an important extent in the hands of youth, and the development of new applications poses a challenge for local governments unlike any of the major trends in the past 40 years, including environment, gender, sustainability and indeed, good governance itself.

The research conducted to date suggests a number of directions that might enable greater potential benefits of ICT and accommodate the challenges it poses for youth and local government:

Putting youth and ICT in local governance on the agenda. Governance needs to be infused with a much stronger sense of the young: to account for their needs, be responsive to their concerns, and to harness their energies. Youthful citizens with mobile phones are governance game changers, authors of a generational-technological revolution. Policy makers will want to gauge the stakes for governance and democratic participation by plumbing the impact of these changes. Careful analysis is required to understand the conditions and proper governance frameworks that are conducive to successful youth engagement via ICTs.

Extend the impact of social media on local government. Mobile phones connected to social media allow young people to engage local government by expressing voice. Policymakers can build on the inroads created through social networks to extend into areas of governance that have so far been impacted less by ICTs and youth, such as improving local services and increasing transparency.

Capacity building for local governments. Training and capacity building for local governments in digital communications can play a critical role in reducing the ICT capacity gap between young citizens and local government staff. Such training should go beyond basic ICT skills and focus on how ICTs can be harnessed not just for good governance, but also for youth-focused policy outcomes.

Level the playing field between national and local governments in ICT. In many cases, national governments are better equipped to respond to youthful concerns voiced via ICTs at the local level. National governments should be encouraged to help local governments address youthful concerns at the local level on their own. This may be supported by increased “decentralization” of youth/ICT strategies, bolstered by budgetary allocations and devolution of authority.

Support crowd-sourced data for public goods. Local, national, and international agencies should explore the great potential of harvesting the best of youthful contributions to local government by such means as social media, crowd-sourcing and coordinated use of mobile platforms as a way to revitalize local democracy.

REFERENCES

Brasil, T. (2012) Projeto Exelencias. Retrieved August 12, 2014, from http://www.excelencias.org.br/

Voces Blog Post (2013). Election Bug Catches 1,000 Youth in Yemen. Retrieved April 8, 2013, from: http://creativevoces.com/2012/06/election-bug-catches-1000-youth-in-yemen/

DANIDA (2012). *Using ICTs to Promote Governance: A Danida Study*. Retrieved July 15, 2013, from: http://um.dk/en/~/media/UM/English-site/Documents/Danida/Partners/Research-Org/Research-studies/Using%20ICT%20to%20Promote%20Governance%202012.ashx

Fitzpatrick, A. (2012). *Can Youth Change the World with Technology?* Retrieved July 10, 2012, from: http://mashable.com/2012/05/24/youth-change-world-technology/

International Telecommunications Union (2011). *Measuring the Information Society. International Telecommunications Union.* Geneva, International Telecommunications Union.

International Telecommunications Union (2013). *ICT Facts and Figures*. Retrieved November 15, 2013 from:http://www.itu.int/en/ITUD/Statistics/Documents/facts/ICTFactsFigures2013-e.pdf

Kubatana.net (2012). *TI-Z launches interactive SMS platform to report corruption*. Retrieved April 11, 2013 from: http://www.kubatana.net/html/archive/cact/121105tiz.asp?sector=INFTEC&year=2012&range_start=1

Nashrulla, Tasneem (2014). *Why India's Young, Urban Adults Are Finally Interested In The*

Elections. Retrieved April 11, 2014, from: http://www.buzzfeed.com/tasneemnashrulla/why-indias-young-urban-adults-are-finally-interested-in-the

OECD/International Telecommunication Union (2011). *M-Government: Mobile Technologies for Responsive Governments and Connected Societies*, Retrieved August 8, 2014 from: http://dx.doi.org/10.1787/9789264118706-en

Palvia, Jain and Sharma, Sushil (2007). *E-Government and E-Governance: Definitions/Domain Framework and Status around the World*. Retrieved June 15, 2014 from: http://www.iceg.net/2007/books/1/1_369.pdf

Pew Research Global Attitudes Project (2014). *Emerging Nations Embrace Internet, Mobile Technology*. Retrieved February 4, 2014 from: http://www.pewglobal.org/2014/02/13/selected-age-break-tables/

Plan International (2010). *Digital and Urban Frontiers: Girls in a Changing Landscape*. Retrieved April 2013 from: http://www.planusa.org/becauseiamagirl/docs/becauseiamagirl2010.pdf

Project Ersod (2012). *Project Ersod*. Retrieved from: http://ersod.org/.

Rao, M. (2011). *Mobile Africa 2011*. Retrieved July 2012 from: http://www.slideshare.net/momobeijing/mobile-africa-2011

Rawi, Anas (2012, 16 February). Yemenis to Participate in SMS Election Monitoring, *Yemeni Times*. Retrieved July 15, 2012 from: http://www.yementimes.com/en/1547/news/420/Yemenis-to-participate-in-SMS-election-monitoring.htm.

Secretariat of the Global Alliance for ICT and Development (2011). *Youth and ICT as Agents for Change: Issues Paper*. United Nations Department of Economic and Social Affairs (UNDESA).

Retrieved June 10, 2012 from: http://unpan1.un.org/intradoc/groups/public/documents/gaid/unpan035691.pdf

SMS in Action (2012). SMS in Action. Retrieved July 15, 2014 from https://smsinaction.crowdmap.com/main.

Thompson, Briana (2012, December 11). Young and Wired. *Accountability Lab*. Retrieved April 11, 2013 from: http://bloggingonaccountability.org/2012/12/11/young-and-wired/

Todos Somos Dateros. (2012). Todos Somos Dateros. Retrieved July 28, 2012 from http://datea.pe/info/todos-somos-dateros.

UN Habitat (2012). *ICT-Enabled Urban Governance in the Developing World. Quick Guides for Policy Makers.* Nairobi, UN Habitat.

United Nations Development Programme (2011). *Mobile Technologies and Empowerment. Enhancing Human Development through Participation and Innovation*. Retrieved July 2012 from:http://www.undpegov.org/sites/undpegov.org/files/undp_mobile_technology_primer.pdf

Voices Against Corruption (2012). Voices Against Corruption. Retrieved July 10, 2014 from: http://voices-against-corruption.ning.com/page/about-gyac

World Bank (2012). *ICT4D 2012: Maximizing Mobile.* Retrieved July 12, 2014 from: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTINFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/0,,contentMDK:23190786~pagePK:210058~piPK:210062~theSitePK:282823,00.html

FOOTNOTES

[1] UN Habitat, 2012. "Quick Guides for Policy Makers (second series)ICT-enabled Urban Governance in the Developing World" Nairobi: UN Habitat.

[1] Interview with Sangwa Rwabhuhihi, President and Founder, Nibyiza Group, Kigali, Rwanda, July 2012.

[1] Interview with Hon. Jerry Silaa, Mayor, Ilala Municipal Council, Dar es Salaam City, Tanzania, December 2012.

[1] http://www.unicef.org/infobycountry/uganda_62001.html

[1] Roxana Widmer-Iliescu, Senior Programme Officer ITU, Consultation, November 2012.

[1] Chris Muthuri, YouthAlive! Kenya, Consultation November 2012.

[1] This is a UNICEF initiative implemented with local NGOs, for more information see: https://smsinaction.crowdmap.com/reports/view/137

[1] Interview with Noluthando Hermanus, Project Coordinator, Khanysia Youth Network, South Africa, November 2012.

[1] Interview with Thomas Maqway, Founder and Executive Director of the Centre for Economic Prosperity; Founder and former first Chairman, Tanzania Development Forum for Youth, July 2012.

[1] Interview with January Cletus, Secretary General, Tanzania Development Forum for Youth, December 2012. See http://www.vijanaforum.org/infocenter/

[1] Interview with Kepha Ngito, Executive Director, MAP Kibera, July 2012.

[1] Chris Muthuri, YouthAlive! Kenya, Consultation, November 2012.

[1] "Yemenis to Participate in SMS Election Monitoring," Yemeni Times, Anas Rawi, 16 February 2012. Retrieved July 2012 from: http://www.yementimes.com/en/1547/news/420/Yemenis-to-participate-in-SMS-election-monitoring.htm. See also "Election Bug Catches 1,000 Youth in Yemen," June 25, 2012 Creative Voices. Retrieved April 8, 2013 from: http://creativevoces.com/2012/06/election-bug-catches-1000-youth-in-yemen/

[1] See Nashrulla, 2014.

[1] "Can Youth Change the World with Technology?", Alex Fitzpatrick, Mashable.com, May 24, 2012. http://mashable.com/2012/05/24/youth-change-world-technology/

[1]http://politmer.kg/

[1] "TI-Z launches interactive SMS platform to report corruption," Kubatana.net, November 5, 2012. Retrieved on April 11, 2013 from: http://www.kubatana.net/html/archive/cact/121105tiz.asp?sector=INFTEC&year=2012&range_start=1

[1] http://voices-against-corruption.org

1 "Young and Wired," Briana Thompson, Accountability Lab, December 11, 2012. Retrieved on April 11, 2013 from: http://bloggingonaccountability.org/2012/12/11/young-and-wired/

[1] http://www.huduma.info/

[1] http://datea.pe/info/todos-somos-dateros

[1] Interview with Surabaya Municipality, June 2012.

[1] Interview with Cedric Umuhire, ICT Manager of the Municipality of Kigali, July 2012 and interview with Chalid Buhari, Head ICT Department, Surabaya Municipality, Indonesia July 2012.

[1] Interview with Charles Rusmbi, Manager of Youth, Sports and Culture, City of Kigali, December 2012. Training took place in the Kigali Kimisagara One Stop Youth Employment and Productive Center.

[1] Interview with Noluthando Hermanus, November 2012.

[1] "Maximizing Mobile", World Bank, 2012, p. 94.

[1] Interview with Kepha Ngito, July 2012.

[1] Interview with Sangwa Rwabuhihi, December 2012.

[1] Interview with Cedric Umuhire, July 2012.

[1]This conclusion is confirmed by Secretariat of the, Global Alliance for ICT and Development, UNDESA in its issue paper Youth and ICT as Agents for Change. See: http://unpan1.un.org/intradoc/groups/public/documents/gaid/unpan035691.pdf

[1] Interview with Poornima Meegammana, Project Coordinator, YES – City of Youth, Kandy Sri Lanka November 2012.

[1]Low-cost semiconductor technology has pushed down the price of a basic smartphone to below $100 in emerging markets over the past year.

[1]Mobile Africa 2011, Dr. Madanmohan Rao, MobileMonday, March 2011. Retrieved from: slide/ page 34 http://www.slideshare.net/momobeijing/mobile-africa-2011

[1]"Social networking and user-created content are now among the main online activities in which young people especially (who constitute the majority of the population in developing countries) are actively engaging…"Measuring the Information Society 2011, ITU, Geneva Switzerland, p.3.

[1] Ibid.

[1] Interview with Roxana Widmer-Iliescu, Senior Programme Officer, ITU, July 2012 and Nicolas Jammes, Project Coordinator, ITU-Global Girls in ICT Day Project, Consultation, November 2012. Also see "Digital and Urban Frontiers: Girls in a Changing Landscape, " Plan International 2010. Retrieved April 2013 from: http://www.planusa.org/becauseiamagirl/docs/becauseiamagirl2010.pdf

[1] Interview with Giuliano Stiglitz, CEO, Orange Advertising Americas - France Telecom Group

July 2012 and Sigri Stokke Nilsen, Coordinator for Young Participation at UngOrg , City of Oslo, Norway, Consultation, October 2012.

ANNEX I: LIST OF INTERVIEWEES

(conducted during fieldwork)

Saeed Mohammed Al-Dowail , President of the Assembly, Democracy Youth Society, Yemen

Eric Brown, Youth Coordinator, Sustainable Cities International, Vancouver, Canada

Chalid Buhari, Head ICT Department, Surabaya, Indonesia

January Cletus, Secretary General, Tanzania Development Forum for Youth

Noluthando Hermanus, Project Coordinator, Khanyisa Youth Network, South Africa

Poornima Heshadharani, YES – City of Youth Project Coordinator, Kandy, Sri Lanka

Ajit Jaokar, Oxford University

Mthun Kumarasinghe, YES project participant, Kandy, Sri Lanka

Thomas Maqway, Founder and former first Chairman, Tanzania Development Forum for Youth, Current Executive Director at Centre for Economic Prosperity

Walaa Mdoukh, Projects Coordinator, Palestinian Friendship Center for Development, Gaza

Niranjan Meegammana, Project Director & Chief Technologist, Shilpa Sayura Foundation, Sri Lanka

Vincent Mikuru, MAP Kibera

Eva Clemente Miranda, Transport Water and Urban and Information Technology, World Bank

Oliver Mugame, Former Vice Mayor, Finance and Economics, Municipality of Kigali

Phillemon Mutashubirwa, Programme Manager, UN-HABITAT, Tanzania

Jean Philbert Nsengimana, Minister of Youth & ICT, Government of Rwanda

Kepha Ngito, Executive Director, MAP Kibera

Charles Rusimbi, Manager of Youth, Sports and Culture, City of Kigali

Martin Ruvugabigw, Executive Director, Nibyiza Group, Kigali, Rwanda

Sangwa Rwabhuhihi, President and Founder, Nibyiza Group, Kigali, Rwanda

Hon. Jerry Silaa, Mayor, Ilala Municipal Council, Dar es Salaam City, Tanzania

Giuliano Stiglitz, CEO, Orange Advertising Americas - France Telecom Group

Cedric Umuhire, ICT Systems Management Unit Director, City of Kigali, Rwanda

Roxana Widmer-Iliescu, Senior Programme Officer, ITU

Srinivas Chary Vedala, Executive Director, Administrative Staff College, Hyderabad, India

Mahmoud Zant, Executive Manager, Palestinian Friendship Center for Development, Gaza

ANNEX II: CONSULTATIONS

(feedback and reflections on cases and full document)

Youth Consultations

Anette Arneberg, Member of Oslo Youth Council

Joanne Kariuki, Executive Director, YouthAlive! Kenya

Balder Bryn Morsund, Vice President of Oslo Youth Council

Chris Muthuri, Partnerships and Institutional Development Officer, Youth Alive! Kenya

Sigri Stokke Nilsen, Coordinator for Young Participation at UngOrg , City of Oslo, Norway

Ida Ragnarsson, Programme Manager, National Council of Swedish Youth Organizations

Andreas Svela, President, Oslo Youth Council

Viktor Orri Valgarðsson, National Youth Council of Iceland

International Telecommunication Union

Doug Court, Broad Band Commission for Digital Development & Junior Analyst, ITU

Nicolas Jammes, Project Coordinator, ITU-Global Girls in ICT Day Project

Roxana Widmer-Iliescu, Senior Programme Officer, ITU

ANNEX III: 50 CASES – YOUTH, ICT & LOCAL GOVERNANCE

No.	Area of Governance	Country	Type	Case	Reference
1	1 Balancing inclusiveness and responsiveness	UK	b>y	**Apps for Good** - offers unemployed youth a free training course on how to design, code and build social apps.	http://mashable.com/2012/04/18/facebook-apps-for-good/
2	1 Balancing inclusiveness and responsiveness	West Bank	n>y	**Ruwwad ICT youth programs** provide ICT instruction, social networking and engagement via ICTs. Developed online Palestinian Youth Portal	http://www.ruwwad.org/index.php?rt=SitePages/ICTYouthProgramming
3	1 Balancing inclusiveness and responsiveness	India	y>g	**Smart Vote** - (Bangalore Political Action Committee) Using IT and mobile phones for voting registration participation, driven by and focusing on youth.	http://www.smartvote.in/
4	1 Balancing inclusiveness and responsiveness	Madagascar	g>y	**Governance by mobile.** National government with international and local cell phone providers encourage participation by youth to provide inputs in development policy.	https://www.undpegov.org/featured/Madagascar
5	1 Balancing inclusiveness and responsiveness	Nepal	n>y	**Voices of Youth** teens using Text messages (SMS via toll free mobile number) for self-expression and peer support on a radio show heard by 6.3 million youth.	https://smsinaction.crowdmap.com/reports/view/137
6	1 Balancing inclusiveness and responsiveness	Uganda	n>y	**Ureport** - through SMS and radio young "social monitors" are sent regular polls, gather data on community services and issues, and receive useful facts for action and advocacy.	http://www.unicef.org/infobycountry/uganda_62001.html
7	1 Balancing inclusiveness and responsiveness	Global	g>y	**Girls & ICT Program** - portal to create awareness for young girls of opportunities that ICT education and career development can offer.	Interview with Roxana Widmer-Iliescu, ITU http://girlsinict.org
8	1 Balancing inclusiveness and responsiveness	19 countries	y>c	**Participation 3.0** - Fosters development of internet based technologies to improve local participation and transparency in government-community affairs.	http://pages.e-democracy.org/Participation_3.0
9	1 Balancing inclusiveness and responsiveness	Philippines	g>y	**Checkmyschool.org** – students use social media (Facebook and Twitter) and SMS to comment, monitor and evaluate their schools and inform the public.	www.checkmyschool.org
10	1 Balancing inclusiveness and responsiveness	USA	n>c	**Code for America** recruits young graduates to intern with local authorities to create web-based improvements for access by citizens and functioning of government.	http://www.Codeforamerica.org
11	1 Balancing inclusiveness and responsiveness	Philippines	n>y	**eSkwela Project** - provide ICT-enhanced educational opportunities for Filipino out-of-school-youth and adults.	http://eskwela-apc-nstp.wikispaces.com/about+the+project.
12	2 Engaging Citizens as Partners in Urban Governance	Rwanda	g>y	**Mobile App Challenge (for jobs)** Rwanda's Ministry of Youth and ICT, and the UNDP, in close collaboration with Motorola Solutions, deployed a Mobile App Challenge implemented by YouthConnekt, aimed at young	http://www.biztechafrica.com/article/youthconnekt-launches-mobile-apps-human-developmen/7718/#.U6CTX_ldWSq

				entrepreneurs to promote job creation and youth empowerment.	
13	2 Engaging Citizens as Partners in Urban Governance	Ghana, Zimbabwe, others	g>y	**Health Education** Text by SMS developed by texttochange is employed by Savannah Signatures, and NGO to promote education in sexual health in Ghana. Similar programs have been launched in other countries.	http://www.texttochange.org/news/simple-sms-provides-young-people-ghana-sexual-health-education
14	2 Engaging Citizens as Partners in Urban Governance	Brazil	n>y	**Mapa Falante (speaking map)** CEDAPS (Centro de Promocao da Saude—Center for Health Promotion) an NGO, employs mapping techniques to gather information about community health needs by those who know them best: the residents. Tools include mobile phones and the Internet. In related activities, teenagers use digital cameras sitting in old bottles, which are launched via kites to take pictures of specific danger points in favelas, where rubbish heaps can turn into a home for mosquitoes carrying dengue fever.	http://www.cedaps.org.br/portfolio/mapeamento-participativo-do-territorio-mapa-falante/
15	2 Engaging Citizens as Partners in Urban Governance	India	g>c	The rise of social media, increase in first-time youthful voters, and demand for social justice are producing a "youthquake" in electoral campaigning and engagement.	http://www.buzzfeed.com/tasneemnashrulla/why-indias-young-urban-adults-are-finally-interested-in-the
16	2 Engaging Citizens as Partners in Urban Governance	Kenya, Haiti, Nepal	g>c	**Block by Block Design.** Software sponsored by Minecraft and local partners asks young community members to redesign public spaces by using a popular sandbox game that allows players to build anything within the limits of their imaginations.	http://www.Blockbyblock.org
17	2 Engaging Citizens as Partners in Urban Governance	Canada	g>y	**Youth Vital Signs** - youth vital signs report makes use of questions pushed a cell phone. Has worked well. City checks data.	Youthvitalsigns.ca
18	2 Engaging Citizens as Partners in Urban Governance	Gaza	y>c	**Young Reporters for Citizenship** – trains youth on issues of citizenship and media to impact key local and national issues	Interview with Palestinian Friendship Center for Development http://tinyurl.com/d373puu
19	2 Engaging Citizens as Partners in Urban Governance	Ghana	n>y	**Ghana Decides** - foster a better-informed electorate for free, fair and safe 2012 Elections using online social media tools, focusing on youth	http://ghanadecides.com/
20	2 Engaging Citizens as Partners in Urban Governance	Kenya	n>c	**Huduma** - mobile-based communication avenues for citizens to voice, SMS or email service needs or comments directly to authorities and service providers	http://www.huduma.info/
21	2 Engaging Citizens as Partners in Urban Governance	Latvia	y>c	**Latvian E-Petition** - two 23-year-olds built an e-petition system where Latvians could submit and support proposals for new laws and other political changes.	http://mashable.com/2012/05/24/youth-change-world-technology/
22	2 Engaging Citizens as Partners in Urban Governance	Peru	g>y	**Todos Somos Dateros (we are all information providers)** On-line and cell enabled system for citizens to voice their concerns aggregating these concerns and channeling them to city-level decision-makers	http://techpresident.com/news/wegov/23520/peruvian-ngo-discovers-fatal-weakness-civic-participation-platforms

23	2 Engaging Citizens as Partners in Urban Governance	UK	n>y	**Riot Clean Up** – new Twitter handle mobilizing social media for community re-building and clean-up efforts following riots.	http://thenextweb.com/twitter/2011/08/12/act-ii-london-taps-twitter-and-facebook-to-help-re-build/
24	2 Engaging Citizens as Partners in Urban Governance	Madagascar	g>y	**M-Governance Platform for Youth** - supports youth participation in discussions about development in Madagascar using mobile tools based on SMS.	http://www.undpegov.org/sites/undpegov.org/files/undp_mobile_technology_primer.pdf
25	2 Engaging Citizens as Partners in Urban Governance	Afghanistan	g>c	**National Elections** - Large youth voter base has led to campaigning via social media and mobile technology for the first time in Afghan electoral history. Young people constituted 70 percent of provincial council candidates across the country.	http://www.theatlantic.com/international/archive/2014/04/the-newfound-political-power-of-afghan-youth/360216/
26	2 Engaging Citizens as Partners in Urban Governance	Rwanda	g>c	**#MinisterMondays Twitter chats** - Rwanda's health minister responds to every tweet received during chats held every other Monday; SMS channel integrated for those with simple phones	http://tinyurl.com/blc4ntb
27	2 Engaging Citizens as Partners in Urban Governance	Pakistan	g>y	**Sanitation Hackathon** – students developed mobile- and web-based applications for water and sanitation utilities in Pakistan.	http://blogs.worldbank.org/endpovertyinsouthasia/node/786
28	2 Engaging Citizens as Partners in Urban Governance	Rwanda	y>c	**IGIHE.COM** - Youth-created national online news portal- - provide news, people posting feedback and twitter with comments on current events	Interview with Olivier Mugame, Former Vice Mayor, Kigali, http://igihe.com/
29	2 Engaging Citizens as Partners in Urban Governance	Rwanda	y>y	**Nibyiza Group** - Initiates projects to create new opportunities for thousands of youth in Rwanda through ICT.	Interview with Sangwa Rwabuhihi, Interview with Cedric Umuhire, ICT, Manager, City of Kigali http://www.youthrwanda.org
30	2 Engaging Citizens as Partners in Urban Governance	South Africa	y>y	**Drive Out Philippi Radio** - using radio to communicate with youth through a local radio station connected to social media and mobile phones	Interview with Khanyisa Youth Network
31	2 Engaging Citizens as Partners in Urban Governance	Tanzania	y>y	**Vijanaforum.org** - online platform by and for youth with information sharing center and discussion forum for youth to voice their views and organize.	Interview, Tanzania Development Forum for Youth, http://www.vijanaforum.org
32	2 Engaging Citizens as Partners in Urban Governance	Tanzania	g>c	**Open Governance Initiative** Young people were successful in uniting to advocate a freedom of information bill in response to national government call for views of citizens in drafting country strategy document.	Interview with Thomas Maqway
33	2 Engaging Citizens as Partners in Urban Governance	Global	n>y	**One Young World** - a non-profit that provides an open platform for young people to create positive change	http://mashable.com/2011/09/19/one-young-world-social-good-summit/
34	2 Engaging Citizens as Partners in Urban Governance	Yemen	n>y	**Ersod Project** - youth trained to monitor elections and provide a means for reporting election violations, irregularities using SMS text messaging.	https://smsinaction.crowdmap.com/reports/view/201

35	3 Public Openness	Global	y>c	**Global Youth Anti-Corruption (GYAC)** - global network of young leaders, journalists, artists and ICT experts from civil society who work to improve transparency for better governance.	http://voices-against-corruption.ning.com/page/about-gyac
36	3 Public Openness	Global	b>y	**Mobile Alliance** - association of worldwide mobile operators that works with governments and governing bodies to protect youth and young people from being exploited on mobile devices.	http://www.gsma.com/publicpolicy/myouth/mobiles-contribution-to-child-protection/mobile-alliance/
37	3 Public Openness	India, Kenya	n>c	**I paid a bribe** - Web sites and video cams capture and curate stories about corruption.	http://www.ipaidabribe.com/
38	3 Public Openness	Philippines	y>c	**Cellphone Ringtone** - Recorded phone conversation alleged to be between Gloria Arroyo and election official - became popular cellphone ringtones after made public, especially among the youth	http://en.wikipedia.org/wiki/Hello_Garci_scandal
39	3 Public Openness	Kenya	y>c	**MAP Kibera** - ICT media mapping technology to encourage more participation of people in community, engage citizens in mapping	Interview with MAP Kibera http://mapkibera.org/
40	3 Public Openness	Uganda	y>c	**War Child SMS-based campaign against corporal punishment**- Text messages to stop abuse and corporal punishment of youth and children.	https://smsinaction.crowdmap.com/reports/view/176
41	3 Public Openness	Kyrgyz Republic	y>c	**Poltimer website** - used to track the promises made by politicians during elections once they are in office.	http://politmer.kg/ru
42	3 Public Openness	Brazil	n>c	**Excelencias** - developed by Transparency International Brazil and widely used by journalists to increase accountability through reporting; provides open access to public information at various levels of government.	http://www.excelencias.org.br/
43	3 Public Openness	Zimbabwe	n>c	**SMS Reporting on Corruption** - Transparency International Zimbabwe program people report on bribery and corruption by sending an SMS that reaches a center that processes the information and takes action	http://www.kubatana.net/html/archive/cact/121105tiz.asp?sector=INFTEC&year=2012&range_start=1
44	3 Public Openness	Tunisia	n>y	**Parliamentary Marsad (observatory)** Interactive website tracks and provides updates on activities of Tunisian parliament, allowing citizens to pose questions to officials. Questions and answers are moderated by nonpartisan group.	http://techpresident.com/news/wegov/24936/people%27s-marsad-tunisian-parliament#.U1kn336qZEQ.twitter
45	4 Adopting technology to improve outcomes	Indonesia	g>y	**Surabaya Municipality Internship Program** - internships for high school and university students to gain experience with ICT and help the municipality.	Interview with head of ICT department, Municipality of Surabaya
46	4 Adopting technology to improve outcomes	Indonesia	g>c	**Broadband centers** in strategic locations in the city allow citizens to learn about the internet, emails, blogging, as well as other educational or job-specific applications in scheduled classes.	Interview with head of ICT department, Municipality of Surabaya

47	4 Adopting technology to improve outcomes	Many countries	n>y	**m2Work** (mobile microwork) - aims to expand microwork to the 5 billion mobile phones in the developing world.	http://www.ideasproject.com/community/en/treasury/m2work
48	4 Adopting technology to improve outcomes	Senegal	y>c	**Jokko Initiative, Tostan NGO** - community-wide democracy and empowerment programs integrating SMS texting as part of overall education and literacy.	http://www.tostan.org/web/page/599/sectionid/548/pagelevel/2/interior.asp
49	4 Adopting technology to improve outcomes	Sri Lanka	y>g	**Youth Empowerment Society (YES) City of Youth -** helps youth explore digital resources and employs these tools to change the city.	Report & Interview, Project Coordinator Poornima Meegammana www.kandy-youth.org
50	4 Adopting technology to improve outcomes	South Africa	g>y	**eThekwini Municipality community asset mapping pilot projects** with youth in 2 communities, youth explored sustainability features of their community, sites collected and put on the municipality's online Green Map.	http://www.imaginedurban.org/sites/Blog/default.aspx

Audio-visual information centers for South-Asian countries: Bangladesh, a case study

Tanzia Islam & Sahjabin Kabir

Technical University of Berlin, Germany & Harvard University, USA.

Abstract

This paper deals with the issues of illiteracy in Bangladesh and its effects on e-governance. The application of e-governance to the lower income group has not been taken into account previously, as e-governance normally is not discussed in the context of people living below the poverty line. The paper shows that e-governance can be a big economic chance for the densely populated area of Bangladesh that has to face serious obstacles because of the lack of accessibility owing to poverty and illiteracy. In order to address the low-educated community, an audio-visual system for e-services in Bangladesh is presented. The paper also discusses how this system will look like, which chances it offers, what basic structures it will require, how to establish it in an urban context and which impending problems may appear during the implementation.

Keyword: marginalized and poor, audio-visual interaction, access point, densely populated zone

INTRODUCTION

E-governance is a valuable ICT (Information Communication Technology) tool to reach a wider population through various online service deliveries and options including mobile devices. The benefit of the new technology is the maximization of rapid and effective information transfer to communities and individuals. Despite of the benefits it already offers "e-governance initiatives (…) should look for ways of enhancing people's participation in policy decision-making and other governance processes" (Raúl Zambrano, 2013). In the South Asian environment, e-governance can be applicable if the public has proper access to such services. Therefore, it is necessary to provide possible solutions to the lack of information support and access to governmental services. In order to solve the problems in relation to illiteracy, implementing an interactive audio-visual system along with the conventional computing methods can be a sensible approach.

The objective of this paper is to promote the concept of an information system for e-governance activity for the lower income group which has limited or no education. Hence, the discussion will be confined within the alternative technology options and means to address the issues and obstacles with literacy and accessibility. As the fields G2G (Government-to-Government or e-Administration) and G2B

(Government-to-Business) are not applicable to this chapter, the focus will lie on the G2C (Government-to-Citizens or e-Services) part only.

In order to reach the marginalized and the poor, the proposed system will consist of service centers, access points and mobile phones. In the following chapter, the term "service center" stands for an operating office with executives providing the receivers with the requested information. The term "access point" refers to machines similar to ATM booths (Automated Teller Machines), functioning as easily accessible info-points for the receivers. The paper will also discuss how this system could look like and what basic structures it will require. This work can be a helpful contribution to the establishment of an e-governmental system fitting to the specific demands of South Asia, where the majority of people cannot even afford access to the internet. This paper will work as a design proposal based on the current situation of South Asia and will explore the possibilities which can be implemented immediately. As the prototype of a densely populated area in South Asia, Bangladesh is taken as case study.

THE CONDITIONS FOR E-GOVERNANCE IN BANGLADESH

Bangladesh is a densely populated country with more than 156,600,000 inhabitants (Worldwide Governance Indicators, Country data report for Bangladesh, 1996-2013, 2013). It is considered a developing country with a gross national income (GNI) of 900 USD (Worldwide Governance Indicators, Country data report for Bangladesh, 1996-2013, 2013). The GDP has developed in the recent years continuously with a growth of six to seven percent per annum since 2004 (Worldwide Governance Indicators, Country data report for Bangladesh, 1996-2013, 2013), which is unquestionably a positive indicator of developing countries. Alike other developing countries, the number of fixed telephone and mobile phone users is increasing every year. A rough calculation shows that 57.5 percent of the total population uses telephone services. On a closer examination, the number of telephone subscribers increased from 74,188,000 in April 2011 to 115,627,000 in April 2014. This growth can also be observed in case of internet users, where the number of users increased from 33,043,000 in April 2013 to 37,172,000 in April 2014 (BTRC, 2013)& (BTRC, 2014). Such an increase of telephone and internet users suggests that e-governance can play a key role for the economic and social development of Bangladesh.

Advancement

Several efforts have been taken by the government of Bangladesh to establish e-governance in the country. More than 50 percent of the ministries have their own Local Area Network (LAN) (e-Governance Horizon Scan report, an assesment study of e-Governance in Bangladesh, 2007). Electricity, telephone and gas bills can be paid via internet today. Different governmental information is already available along with documents which citizens can download for free from internet. The condition is developing apparently slow. Currently the Government of Bangladesh aims to achieve a "Digital Bangladesh" within 2021. The GOB has upgraded and launched a new website in June 2014, along with an announcement of having 50,000 trained officials to operate and maintain it. This particular website is designed as "one stop service point" and is interlinked with all the governmental organizations. The Bangladesh post office started Electronic Mail Services (e-post) via 16 General Post Offices (GPO). Also in 1,000 tele-centers (e-Governance Horizon Scan report, an assesment study of e-Governance in Bangladesh, 2007), as well as cyber cafés, e-mail- and video-conferencing facilities are available. The

integration of ICT in the private sector is increasing, depending on the business area. The number of ATM booths, sales points with electronic cards, SMS-banking, tele-banking etc. is increasing continuously. In addition to that, several devices for a public access of e-services with the name Union Information and Service Centers (UISC) have been established recently. These centers, which are part of the so called "a2i"-programme (Access to information (a2i) programme, n.d.), are supported by the government and operate at all 4,547 Union Parishad (UP) – the lowest branch of local government. They consist, in general, of technical tools like computers, printers and digital cameras. Though these centers are meant to support the citizens in the whole country – especially the ones in the rural areas – with e-services, their outcome for the lower income group can be questioned, as the provided information is not specified for them and requires certain language and basic IT-skills. All these facts show the positive advancement in terms of e-governance in Bangladesh, and the efforts are already visible, but still the development of the system remains a slow and time consuming process.

Backlogs

Despite of the efforts in the past, the establishment of e-governance still faces serious backlogs. The previously mentioned demographics indicate a positive growth for Bangladesh, but a comparison of growth-related data with other sets of data clarifies the true condition: 49.6 percent of the population earn less than USD 1.25 PPP (Purchasing Power Parity) per day. Therefore, half of the total population directly cannot avail the equipment required for e-services (Ahmed Imran, 2010). Along with this data, the literacy rate must be taken into account. Officially, the adult (15+) literacy rate is at approximately 55.9 percent, but the level of standard can be questioned based on the mean duration of schooling, which is only 4.8 years for the adults at the age of 25+; which means that half of the population lives below subsistence level and did not complete a primary education (Halil Dundar, 2014) . When it comes to the urban context of Bangladesh, the head count rate (Head count rate (CBN), 2005)of incidence of poverty ranges between 14.6 percent (lower poverty line) and 28.4 percent (upper poverty line). In addition to that the informal urban settlements face various problems like a lack of sanitation, safety, medical support and educational facilities. Espacially in less developed urban areas there is barely any access to the existing e-services. Along with that comes a lack of supporting devices and power supply to operate them. Currently, access to e-services for a wider population in the urban regions seems to be an ambitious target, due to the costs of these services and the lack of necessary power supply. In addition, a lack of required know-how and a preservation of the traditional and centralized organizational structure impedes the effectiveness of e-governance (Ahmed Imran, 2010).

THE NECESSITY OF AN AUDIO-VISUAL COMMUNICATION SYSTEM

In the following part a possible solution will be presented for enhancing the access to e-services. The paramount challenge e-governance faces consist in the transfer of information via internet and the requirement of computers or similar technologies to receive it. This may seem like a technical issue, but it becomes a huge obstacle to the low income group and the low-educated community which includes almost half of the population of Bangladesh. In most of the cases, it is still difficult to operate when most of the people cannot read and are not aware of technical tools in general. The solution to it can be an appropriate communication system including service centers and communication devices. Currently most of the government websites only provide information in English. According to the (e-Governance

Horizon Scan report, an assesment study of e-Governance in Bangladesh, 2007), 98 percent of the people communicate in Bangla, so it would be much more effective to deliver the information in Bangla as well as in English. But information only provided in a written format will not be very effective due to the lack of literacy. As a proposed way to transfer information, this paper s (Md. Zohurul Islam, 2012) suggests an audio-visual method along with a written one. If the entire system can be operated on an audio-visual basis, more users can be reached.

Until today some audio-visual approaches have already been applied in South Asia, like the above-mentioned "a2i"-programme in Bangladesh (Access to information (a2i) programme, n.d.) Or the "National e-Governance Plan Project" (NeGP) in India, which will be presented below. These efforts did not have any effects on the low-educated or illiterate groups, because they did not not target them. In general, it can be said that the efforts to apply audio-visual approaches adopted in South Asia are by far not sufficient to reach a wider range of recipients and especially not the marginalized and the poor. The main reason for this is a missing design for people who are not familiar with the devices and applications necessary for e-services. The here presented audio-visual system, consisting of mobile-phones, access points and service centers can be a solution to this problem. By the implementation of the proposed system, the urban poor of South Asia will be able to participate in e-governance-processes in the future.

Information which can be provided in the urban context

By establishing an audio-visual system, a big variety of information can be provided in a bundled and synergetic way. Daily prices, local government rules, safety issues, transportation and traffic related information, weather forecasts as well as educational services can be easily accessed. Especially in the densly urban areas without any medical support the health realted issues are of predominant significance. The common deseases like malaria, diarrhea and cholera require access to informtion on precautions and primary remedies. In addition to that, the government can use the information system as a tool for monitoring local health issues and necessities in the communities. Especially the informal urban areas often require individual approaches which cannot be offered by a standardized operating system applicable for the whole county. Instead of a bare application of borrowed off-the-shelf-solutions from the west, local contexts must be considered and embedded in the design. It is obvious that a red-light district like the well known at Narayangang struggles with unique problems related to sexual transmitted diseases like HIV, which may be prevented by providing relevant information. In addition to that, serious violations of human rights like child abuse, rape, human trafficking and illegal drug use are common problems in local brothels. In most of these cases there is hardly any chance to report these crimes. The installation of an easy to handle interactive system may offer solutions to these problems. With such an interactive system legal aid can of course be offered in any other context of the urban regions as well. In contrary to that, other regions have different structures with variant requirements. In the informal settlement at Savar, industrial workers – especially in the garment industry – constitute the majority of the marginalized and the poor community. Frequent strikes among workers have negative effetcs on the business community and thus on the governmental organization. Fair wages, length of working day and safety issues are the most controversial topics. Information on working hours, holiday, salary details, bonus offers, job vacancy and others can be provided via public access points. The establishment of a system offerering these services can lead to more transparency among the participants to guarantee fair working conditions.

The establishment of service centers

In order to transfer e-services to the marginalized and poor, service centers are required. In a number of research papers it has been proposed that how this distribution system might function. To deliver e-services to the receivers, a group of service centers with specialized and trained manpower is obligatory (Islam, 2009). Providing specific help and guidance up to general and regular data monitoring and updating will belong to their tasks. The required specialized manpower is currently available in Bangladesh and just needs a proper management. Besides the already trained employees for the "Digital Bangladesh 2021"-Project (Bangladesh National Portal Launched, Milestone to Achieve Vision 2021, 2014), many graduates from Bangladesh could be employed for the centers. According to the ministry reports, 25 public universities and 46 private universities and many training centers are teaching ICT in the country (BANBEIS, 2012). As the existing infrastructure has already e-service centers in 64 districts (Md. Zohurul Islam, 2012), these centers can be used for the proposed system too.

Improving the access to the provided services

The idea of including the marginalized and poor community with e-services is a challenge to itself. For e-governance, an internet database, an internet connection and information receiving devices are required for the operation. The possible options can be basic mobile phones, smart phones or computers and access points. Considering the target group with limited income and education, the recommended options are basic mobile phones and access points. As this group cannot own personal internet operating devices like smart phones or computers, these devices can be neglected here.

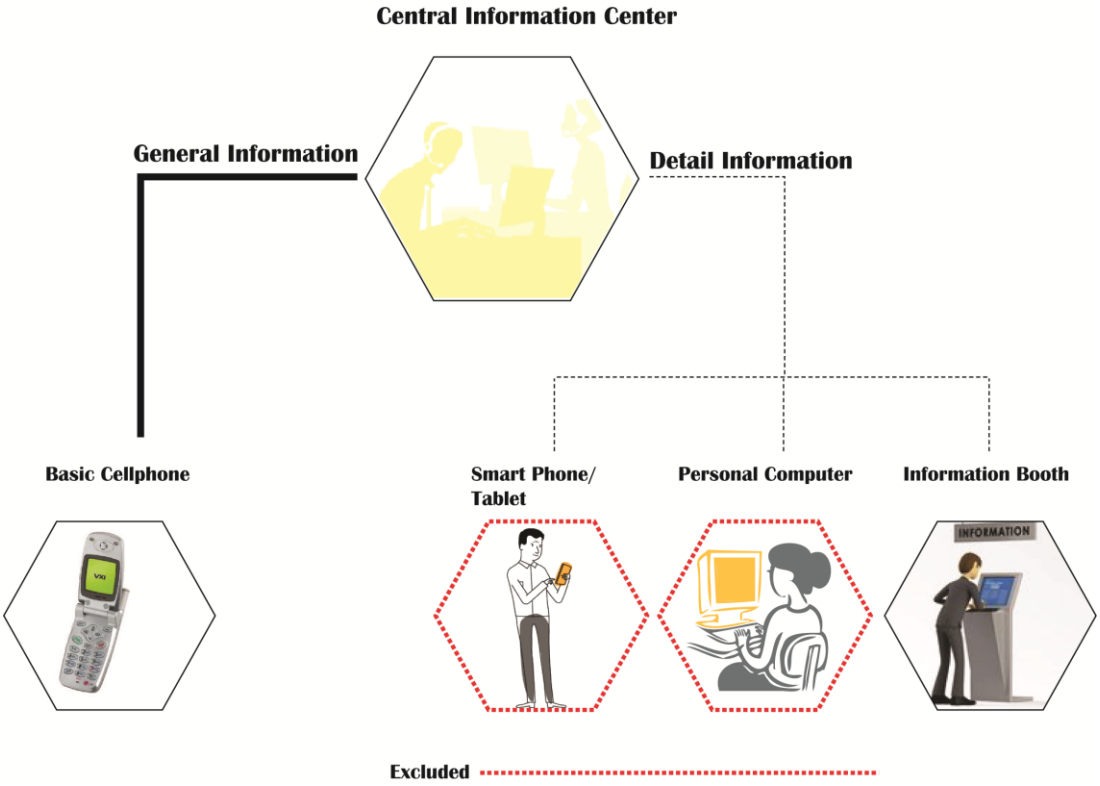


Figure: e-governance

a. Mobile phones:

The first proposed option is a basic mobile phone. The increasing number of mobile phone users is an indicator for this device as a tool for e-governance. Many basic information can be transferred via mobile phones. The current application of e-governance via mobile phone is mostly one-sided and rarely reciprocal. In the current e-governance system of Bangladesh, information via SMS (Short Message Service) is already available for different services e.g. emergencies, weather forecasts, health related campaigns, results of public exams, passport delivery updates and others. The service can be more efficient when the service is not limited to SMS. A basic mobile phone can be used for e-governance by integrating the audio system that passes information based on dialing certain numbers or by providing voice commands. Calculating from zero to nine can be considered a minimum standard that anyone can fulfil.

The range of possible services and information transferred via mobile phone is wide. Recently installed examples of help-lines are differently successful. A project in India has been adopted for women and child abuse support with the name "childonline" (Childonline, 2014). This commonly accepted project, which started in Mumbai in 1996, offers a toll free help-line for street children, which everybody can dial. A comparable realization of this successful project seems rather complicated in Bangladesh. A recent example is the so called "Krishi call center", which was launched by an NGO called "Practical Actions" in 2012 (Krishi call centre, 2014). This project includes a toll-free number to provide information on agriculture to the farmers. By dialing 16123, the farmers can call a center, which provides them with requested information on agriculture, fisheries and livestock. During the experimental phase, about 35 calls from farmers were enlisted each day. The initial support, the collection of about 5,000 questions and answers as well as the further operation was realized by "Practical Actions" for 18 months (Krishi call centre, 2014), until the project has been entirely handed over to the ministry of agriculture. While the project initially worked successfully during the experimental phase, the process turned out to be apparently slow after the government took over full responsibility. One can imagine that this will not remain the only example being successful in the initial phase, but turning out to be a failure during the full realization on a wider range. The example also shows that the challenge not only lies in taking the initiative, but also in managing and continuing the process.

b. Access points

In cases people do not have mobile phone access or in which a more specified service is necessary, another way of communication must be found. As an alternative support, the establishment of access points is necessary. This option offers the chance to overcome the limitations of mobile phones and the problems of illiteracy (Halil Dundar, 2014). By the installation of access points providing audio-visual services, a wide range of people in Bangladesh can be reached.

The idea of installing access points targeting at the "common man" has already been launched in other countries before. Among all, the most ambitious project is probably the so called "Common Service Center Scheme" in India, which is part of the National e-Governance Plan Project (NeGP). It is organized as a public-private partnership and includes a budget of 270 billion rupees (~ 4.25 billion USD). The initial goal to install about 100,000 "tele-centers" is almost reached today, so that the country is theoretically supported nationwide. These centers are supposed to offer services in the fields of education, tele-medicine, agriculture and entertainment (Rajanish Dass, 2011). Although the efforts for implementing the project have been huge, it is critized for its poor demand and affordability among its

users. As predominantly being useful for the higher-income groups, the system ignores the problems of illiteracy, local language contexts and relevant applications for the poor (Rohit Prasad, 2012).

i. Suggested features of the access points

For an efficient application, the access points will need to provide certain facilitating features. Considering the very technical features, there are already many technologies available which can be used for the proposed audio-visual access point. The current technology supports the following options which can be taken into consideration:

Audio guidance to instruct the users: audio instructions can ensure that the information can be passed to a higher number of people. Many vending machines and GPS-devices are very common examples.

Scanning voice command: this option will also avoid the necessity of writing. Google devices and many phone operators use a similar technology.

Touch screen/button tab option: these are very basic necessary options to ensure that the system works well. Many public ticket booths as well as vending machines in western countries use them. These machines should have durable metal buttons so that less maintaining costs are necessary.

Close circuit camera for the operators in case of emergency: this is a necessary option to ensure the effectiveness of the service. The operator can see the person, if human interaction is required. Face detection can also ensure the safety and will reduce the demolition of the info-centers. ATM booths elaborately use such devices.

Use of logos, pictures and color-codes instead of written formats: it is easier to incorporate signs and colors to pass information. This is also a good alternative to written information. A very simple example to that are signal lights, where red means "no" and green "yes". Logos can also carry various meanings. The best-known example is the voting ballot used during the election in Bangladesh.

Engraving for visually impaired: standardized machines often use such engravings. Besides the audio system, the use of the braille method will help the visually impaired community to get easy access. This can also enlarge the acceptance of the system and encourage people to use the machine being accessible to everyone.

Operating option with valid identification/pin code: in order to avoid misuse of the machines, a personal identification code is needed. One possible option can be the voter-ID-number which contents a recently updated database. In 2007-2008, the government successfully completed the "voter-ID-project". Around 80 million people were enlisted, which makes it currently the largest database in the world. Every person received a national ID-card including his picture and an individual number (Ahmed Imran, 2010).

ii. Possible locations for the access points

In the following part, possible locations for the access points in urban areas will be discussed. Considering the urban compactness of South Asian cities, the innovative use of space is obligatory. Generally, due to the lack of space, every fine detail counts.

The here-presented urban info centers mainly aim at the marginalized and poor. The locations of the access points require easy accessibility for the target group. The closer the point is to the user, the more effective and efficient it will become. So the access points should be close to the neighbourhoods or to the working areas. This will encourage the target community to get involved in the e-governance process. In case of urban settlements, an equally distributed grid design for positioning the access points may be a reasonable choice for many cities, but in case of Bangladesh this system may not be efficient because of its uneven population density. Here the location of the points should rather follow the population density map, as the marginalized and poor mostly live in dense areas.

Traffic issues, transportation costs and required time to reach the access points should be taken into consideration. The information centers should be suitably placed within walking distances. This can make the operating system cost-efficient and hassle-free. The centers may be assigned with a color code. For easiness in navigation, a location map of these information centers may be prepared and provided at different public spaces.

Possible locations can be bus or train stops as well as factory zones. Other locations can be easily accessible public places, for example, public offices, post offices, hospitals or markets. Considering the land availability, cost and security, information centers might be integrated within other public buildings. In urban contexts schools may not be recommended as a location. It is common to select schools and educational institutions during elections as voting venues, but a daily use might be inadequate here, as the safety of the pupils is a priority.

IMPLEMENTATION RECOMMENDATIONS AND IMPENDING OBSTACLES

As the operation of the presented system requires previous planning and organization, some implementation recommendations as well as impending obstacles will be presented here.

Initially, the installation of one or more prototype units consisting of one service center connected to an access point and a cell-phone network is recommended. Here the practical suitability and the appearance of technical obstacles can be supervised in a smaller frame. After a successful test phase in which the processes can be optimized and improved, the locations for the service centers and the access points must be defined according to the population density and the local requirements. Then the installation of service centers and access points can be implemented. As we already have existing service centers of the governmental “a2i”-programme (Access to information (a2i) programme, n.d.), this infrastructure can be used here as well, as long as the locations and services are optimized and the stuff is additionally trained according to the attempted goal. This will require specializations and adaptations to the new system with its special devices and services as well as a coordination of the varying databases. In addition to that, the number of service centers needs to be increased and adapted to the population density map of the urban regions.

But before the installation of the service centers and the access points can take place, the power supply in Bangladesh must be particularly taken into account. The most striking challenge for the implementation will be the energy support, as energy is the prerequisite for ICT infrastructure (Md. Zohurul Islam, 2012). As the power generation system is not sufficient for the necessary power consumption, alternative power sources are needed. The three state owned organizations, the Bangladesh Power Development Board (BPDB), the Dhaka Electric Supply Authority (DESA) and the Rural Electrification Board (REB) are the

public organizations being responsible for power supply. According to the ministry of power, energy and mineral resources (Power sector updates, 2014), only 3,267 Mega Watt (MW) were generated, instead of 5,200 MW, which would have been necessery for the national demand. The target was to raise the power generation up to 5,000 MW by 2011 and 7,000 MW by 2013 (Power sector updates, 2014). This infrastructure is not sufficient for the continuously growing demand. The continuous development of the solar industry in Bangladesh and a more efficient energy storage can be a solution to that problem. One example is an e-learning-school for the underprivileged children called "The Light of Hope", which just started a project completely based on solar-generated energy for its necessary equipment. This kind of energy-support can be a model for the here presented access points.

Once the power supply and an uninterrupted internet-connection is guaranteed and the system is running, the promotion of the system should not be neglected, because most of the people in Bangladesh are still not aware of e-governance. Although the government has already taken promising efforts with the "Digital Bangladesh"-project, the system will only function properly if people know more about e-governance and how to use its facilities (Raúl Zambrano, 2013). The public needs to know which services exist and which are their benefits (Md. Zohurul Islam, 2012). The success of e-governance in countries like Bangladesh depends on the number of successful users along with regular service updates. Thus a strong marketing strategy is needed. Creating small workshops for the community and advertisement demonstrating how easily accessible and useful the access points are is highly recommended. In addition to that, the installation of a model point for promotional purposes can be part of the marketing strategy.

In order to react on expected or unexpected problems during the implementation of the presented audio-visual communication system in the urban areas, the establishment of certain key success indictors is highly recommended. This can be ensured by an efficient monitoring system. The outcome of the system can be measured through a direct or indirect feedback, which should consist of different elements. The basic method should be to get a regular satisfaction report in daily or weekly intervals, which can be implemented by measuring the frequency, the duration and the individual demand and type of usage of the different services. Supplementary information on the usage and the weaknesses of the system can be located by questionnaires of key users from the urban areas of different age groups, professions and gender. The monitoring system for the access points will require close observation of the users' behaviour based on the locality and the profession to understand which communuty needs what. This combined monitoring and oberservation process will help to redesign the system and to adapt it to the individual local contexts and demands. A regular monitoring and continous improvement on that basis will ensure the success of this proposed system not as a tool for a one-way information supply but a two-sided and interactive process.

CONCLUSION

The paper presented a possible solution to the insufficient access to e-services for the people living below the poverty line in Bangladesh. By the establishment of audio-visual based service centers providing information and services to mobile phone and access point receivers, the information exchange on that lower level can be enhanced. The paper discussed ways of distributing the provided services in the urban context and showed the impending problems with the implementation of these structures. The application

of the presented system can finally lead to a fairer and more balanced way of participating in the e-governance processes and thus help to improve the general living standard in Bangladesh.

REFERENCES

Access to information (a2i) programme. (s.d.). Tratto da Access to information (a2i) programme: http://a2i.pmo.gov.bd/

Ahmed Imran, S. G. (2010). Uncovering the Hidden issues in e-Government adoption in a least Developed Country:the Case of Bangladesh. *Journal of Global Information Management, 18(2)*(April-June), 30-56.

BANBEIS. (2012). Tratto da Bangladesh Bureau of Educational Information and Statistics: http://www.banbeis.gov.bd/webnew/index.php?option=com_content&view=article&id=316&Itemid=171

Bangladesh National Portal Launched, Milestone to Achieve Vision 2021. (2014, June 23). Tratto da Access to Information (a2i) Programme: http://a2i.pmo.gov.bd/content/bangladesh-national-portal-launched-milestone-achieve-vision-2021

BTRC. (2013, April). Tratto da Bangladesh Telecommunication Regulatory Commission : http://www.btrc.gov.bd/content/mobile-phone-subscribers-bangladesh-april-2013

BTRC. (2014, April). Tratto da Bangladesh Telecommunication Regulatory Commission: http://www.btrc.gov.bd/content/mobile-phone-subscribers-bangladesh-april-2014

Charru Malhotra, V. C. (2011). *Citizen-centricity for e-Governance initiatives in Rural Areas.* Indian Institute of Public Administration. Tratto da http://www.unapcict.org/ecohub/citizen-centricity-for-e-governance-initiatives-in-rural-areas

Childonline. (2014, September 13). Tratto da http://www.childlineindia.org.in/

(2007). *e-Governance Horizon Scan report, an assesment study of e-Governance in Bangladesh.* Access to Information (A2I) programme.

Halil Dundar, T. B. (2014). *Student Leearning in South Asia, Challenges, Opportunities and Policy Priorities.* Washington DC: The World Bank.

Head count rate (CBN). (2005). Tratto da Bangladesh Bureau of Statistics: http://www.bbs.gov.bd/RptHIES6_2.aspx?page=/PageReportLists.aspx?PARENTKEY=67

Islam, G. Z. (2009). E-Governance Implementation in Metropolitan and Rural Areas of Bangladesh: An Illustrative Prototype. *International Technology Management Review, 2 Number 1*(October), 33-49.

Krishi call centre. (2014, Jone). Tratto da Practical actions: http://practicalaction.org/krishi-call-centre-bangladesh

Md. Zohurul Islam, R. K. (2012). Preparation of E-Government in Bangladesh:An Exploratory Analysis. *JU Journal of Information Technology (JIT), 1*(June), 19-26. Tratto da www.juniv.edu/jujit/files/2012/09/4.pdf

Power sector updates. (2014, May 22). Tratto da Ministry of Power, Energy and Mineral resources: http://www.powerdivision.gov.bd/user/brec/85/85

Rajanish Dass, A. B. (2011). Status of Common Service Center Program in India:Issues, Challenges and Emerging Practices for Rollout. *INDIAN INSTITUTE OF MANAGEMENT, W.P. No. 2011-02-03*. Tratto da http://www.iimahd.ernet.in/assets/snippets/workingpaperpdf/2011-02-03RajanishDass.pdf

Raúl Zambrano, R. K. (2013). *From Connectivity to Service Delivery: Case studies in e-governance.* NewYork: United Nations Development Programme. Tratto da http://www.undp.org/content/dam/undp/library/Democratic%20Governance/Access%20to%20Information%20and%20E-governance/From%20Connectivity%20to%20Service%20Delivery%20-%20Case%20Studies%20in%20E-Governance.pdf

Rohit Prasad, R. S. (2012). Critique of the Common Service Centre Scheme. *Economic & Political Weekly, xlviI* (6), 18-23. Tratto da http://dspace.mdi.ac.in/dspace/bitstream/123456789/636/1/Critique+of+the+common+service+centre+scheme.pdf

(2013). *Worldwide Governance Indicators, Country data report for Bangladesh, 1996-2013.* The World Bank. Tratto da http://info.worldbank.org/governance/wgi/pdf/c20.pdf

GestãoUrbanaSP: the city built on a network society

Weber Sutti

Marcus Vinicius Russo Roberto

Anita Gea Martinez Stefani

Esther Madeleine Leblanc

São Paulo City Hall, São Paulo, Brazil

Abstract

The beginning of Fernando Haddad's administration was characterized by the creation of a new regulatory framework for the city, obtained from the revision of the Strategic Master Plan (SMP). To embrace society within this revision, the government opened this process in which traditional participatory methods (public hearings) coexisted with innovative methods (digital platforms) in order to involve the maximum number of citizens, representing economic, social and cultural interests and also to attend expectations of a social and modern participation. Therefore, a digital platform called GestãoUrbanaSP (http://gestaourbana.prefeitura.sp.gov.br) was created to engage and optimize social participation in the process. Successfully, this platform was an example of transparency and accountability, in a way that inspired other programs to follow this path.

Keywords: Urban Management, Master Plan, Open Government, Social Participation, Transparency, Open Source.

INTRODUCTION

This paper aims to show that a new kind of government openness and social participation was introduced in São Paulo's current administration, which broke new grounds with an innovative platform of interaction used to assist the formulation of a new regulatory framework of the city. Led by the mayor Fernando Haddad and the Secretary of Urban Development, represented by Fernando de Mello Franco, the revolutionary platform was named GestãoUrbanaSP (Sao Paulo's Urban Management).

By analyzing Brazilian background, beginning on its transition to democracy after the dictatorship period, which endured for 20 years, this paper will show how the population's desires got transformed after this first moment of openness; how the social participation became after this opening, in 1988, and how the

current administration enhanced this process in the 21st Century with new platforms of democracy and interaction.

Therefore, we will show, below, how the administration worked in its first 100 days of operation to launch the beginning of a government digital service that included a free software platform, apps and social media, all to embrace its citizens in its territorial decisions, specially on what concerns the Strategic Master Plan of the city.

BACKGROUND

In the end of the 20th century, Brazil saw itself in a moment of social engagement and participation due to the country's opening to democracy. At the time, in the mid-1980's, Brazilian society understood that it could integrate the State, influencing the process of decision and policy making through an horizontal interaction, differently from the dictatorship moment that the country lived for 20 years.

Within this scenario, Brazilians fought to participate and join the decision-making processes and therefore they strived to reach a new kind of government, requiring accountability through popular pressure, media, social movements and new interactions, culminating in our Constitution, in 1988, which gave legal support for this to happen.

In addition to the political struggle, social movements and other instruments endorsed the Brazilian transition to democracy, like the advent of Internet and Technologies of Information and Communication (TICs). The TICs provided, through hardware, software and telecommunications processes, scientific research and business learning, while the Internet provided the information to be more accessible to citizens and reach a digital environment that shall permit administrations and society to bond in an innovative way. When this happened, society felt eager to participate, contribute, and research how to be a part of the policy making process. This feeling begun to rise, naturally, among young people. The interaction between them via blogs, social networks and other social media platforms showed that the moment permitted an exchange of information, discussions of several themes, being the political and cyber activism one of them.

Therefore, some people think that these instruments changed the way of doing and seeing public policies, since it gave more transparency and possibility of accountability between State and society. TICs and Internet would be instruments, by that perspective, that consolidated the representative democracy, because it helped questioning how to implement this model of government, assisting the structure and thereby making it successful. In that way, citizens constituted part of the process, supervising and participating through collaborative working and discussions.

Due to this entire process and revolution on information basis, Brazil upgraded its digital way of thinking, and realized that it needs to invest in initiatives of virtual and collective development, such as the E-democracy website from the House of Representatives and the Observatory of Youth Participation. In other levels, digital initiatives are being utilized also for participatory budgets tools and other portals like the São Paulo's GestãoUrbanaSP that will be described in the third point of this paper. Before, this document shall contextualize the desire of change within São Paulo's society and situation in which the administration of São Paulo's City Hall and its mayor, Fernando Haddad, embraced this project.

Fernando Haddad's election

As a candidate from the worker's party for São Paulo's City Hall, Fernando Haddad was known by emphasizing, during his campaign, the need of expanding social habitation and democratic participation of several groups through a better urban development. The candidate had a will for changing the city's scope; he represented a modern politician with a renewed perspective.

For that matter, his political prospects attracted the support of well connected groups like art and digital culture collectives who, among other things, are known for demanding this kind of new policymaking, gathering the traditional statement with a modern way of thinking, typical from young initiatives that have the goal of mobilizing and organizing people through the Internet.

Despite gaining the elections, in 2012, Fernando Haddad started this process with only 3% of vote intention and got behind José Serra in the first round of it with 28,98% of rate approval. His main opponent got 30,75%. The second round was a bit better for Haddad, but one must emphasize that he was elected with 55,57% of the votes, showing a very close election and therefore a difficulty of governance for his administration.

A project that at first seemed naïve and distant started to become part of the administration and people's reality. Haddad prompted to say that he wanted to unblock the city, democratizing it in principle through its Urban development. Thus, supporters who backed him up during the campaign embraced this premise and, for that matter, a lot of young representatives joined the management. But it was inside the Urban Development Secretariat - in charge of the administration's main demand, the revision of the Strategic Master Plan - that the digital footprint blossomed.

MAIN FOCUS OF THE CHAPTER

Issues, Controversies, Problems

“The communicating and information-processing power of the Internet is being distributed in all realms of social-life” (p. 24), said Manuel Castells in his book The Rise of Network Society (2010). The premise is a first starter to think governance and public policies applicability issues in a municipal administration today.

The information revolution opened the activism path for civil society. In Brazil, as was discussed in the Background chapter, this openness started in the end of the 20th century, more specifically in the last two decades of it, along with the rise of the Internet and, of course, transition from dictatorship through democracy.

This new interconnection and accessibility to different data, media news and research endorsed a desire of participation, in local and global areas. Therefore, alike volitions and ideas begun to team up in a process that highlighted specific desires and wills, facilitating something that one already could notice in minor local groups, like neighborhoods associations or little and specific kinds of militancy.

When this information-processing expands to every society layers, affecting its lifestyle and even their organizational structuring, it becomes part of the administration’s worries to answer: how does an

interconnected civil society, with virtual accessibility and participation desires, can become part of the municipal's processes?

This question is a latent issue to governors and administrators of all kind. It pervades the municipal and federal power, also including other decision-making processes and groups, like labor unions or even small communities. The possibility of participation, opened by the information revolution in question, aroused the people's will to participate.

Thus, a municipal administration (and other ones abovementioned) has the responsibility, as a democratic and mandatorily updated structure, to follow this advent, respecting and keeping up with its society, now willing to be a part of the decision-making processes.

We are witnessing a new chapter in history, a new kind of government openness. As part of this process, São Paulo's administration is modernizing itself, but not without challenges. To accompany this will and post-modern process, governments will have to venture and become more refreshed, always remembering to open its platforms and stimulate the communication between every levels of social and political performances.

Solutions and Recommendations

With this challenge in sight, Fernando Haddad's administration, in its first 100 days, worked very hard to introduce the revision of the SMP and define a new regulatory framework to the city with the best participation of society - the former administration tried to do it, in 2006, but wasn't successful, mainly due to the lack of society's participation.

By exploiting this assignment, the administration took as a prerogative the will of changing the urban scope, trying therefore to minimize social and spatial differences, transforming São Paulo into a more democratic city, with equal opportunities and quality for all its citizens.

Thus, the government, represented by the Urban Development Secretary, prepared a plan of five territorial joints, that aimed to: rescue the citizenship of vulnerable territories by stimulating the political participation and also improving the public services and urban occupation; optimize the city's development, integrating environmental resources with existing framework; enforce the better development of neighborhoods cores; redevelopment of Downtown's area; and realignment of environmental borders.

Despite the support of urban groups and young initiative, Haddad's task wasn't supposed to be easy, due to his struggle on conquering the civil society's good will, as above mentioned.

Therefore, one of the ideas to optimize the project and establish the new SMP involved an innovative instrument of electronic participation in São Paulo's government: a digital platform that sought to inform, with transparency, likewise raise the population's involvement towards the urban and territorial change that the administration was proposing to the city, called GestãoUrbanaSP.

This platform bloomed a digital footprint within the City Hall, since it worked as a permanent headquarter to discuss the SMP. Therefore, to present the SMP and stimulate public participation in it, the administration thought of a new form of policy-making, which encouraged civil society to be a part of this agenda through this digital platform.

Aligning traditional participatory methods, like public hearings, with innovative methods, such as public meetings with hackers, this new platform was created, in April 2013, to attend and hear the wills of this

network society, eager to be part of this new paradigm of urban guidelines and policy-making. The administration established a hybrid model of participation, since the SMP was being debated also at face to face events that were happening, either, in sub districts of town - a new set of inclusion, therefore, was being used for the discussion, once the City Hall was hosting physical events and also a digital platform with the content.

The first attempt of utilizing these innovative methods began with the *"Café Hacker"* (Hacker Coffee), a pioneer and public event that prioritized an informal dynamic as a way of giving feedback and proposals that would continue the development of GestãoUrbanaSP's digital platform. The event helped the platform to be nourished and was so well seen by the administration that got incorporated by the General Comptroller of the municipality, earning their own space in the web (http://cafehackersp.org).

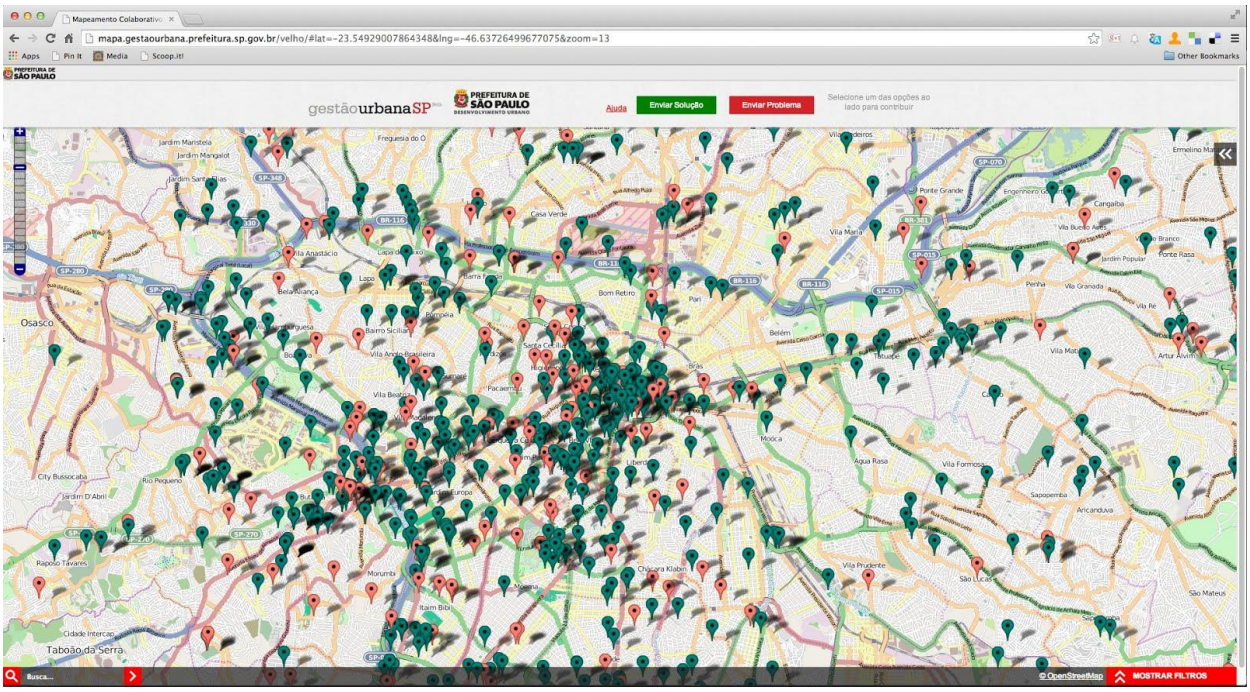
After its launched and contributions, GestãoUrbanaSP started to systematize all the information about the SMP by presenting data (more than 4GB of open data), documents, laws, news and live streaming activities through four stages, explained and organized in the website http://gestaourbana.prefeitura.sp.gov.br/, which is hosted in a open software platform as above mentioned

GestãoUrbanaSP's stages

This digital platform was created as a free software, what might be seen as a detail, but it is very important to the openness issue: this kind of software can be expanded with pre-existent free applications, besides, it can receive collaboration and be reused. Citizens acting as code developers, designers and hackers can contribute to the software, because it is not closed as the proprietary one. Therefore, a free software takes its name because is free-of-charge and doesn't restrict any of their users activities through proprietary copy restrictions.

Once created, GestãoUrbanaSP was thinked to work through four phases. The first step was based on social networking approach, taken as the best way to start a communication between the public power and the population. For that matter, the platform was spread through a Facebook page and email marketing, GestãoUrbanaSP's main triggers. When this communication was established, the platform started to work as a digital headquarter of the SMP.

The second phase aimed to raise propositions and contributions from the population through face to face workshops performed by all 31 sub districts. This process was also released on the Internet with an online live streaming tool hosted in GestãoUrbanaSP's website. 2727 propositions were collected via GestãoUrbanaSP's platform, through two open and easy to understand channels: an online Form and a crowdsourced mapping (that can be accessed here: http://mapa.gestaourbana.prefeitura.sp.gov.br) which permitted, to the citizen, to see its suggestion in a more interesting and visual way. The mapping technology, also an open software instrument, was developed in a hacker's laboratory from society and incorporated by the administration. The result can be seen in the image below:

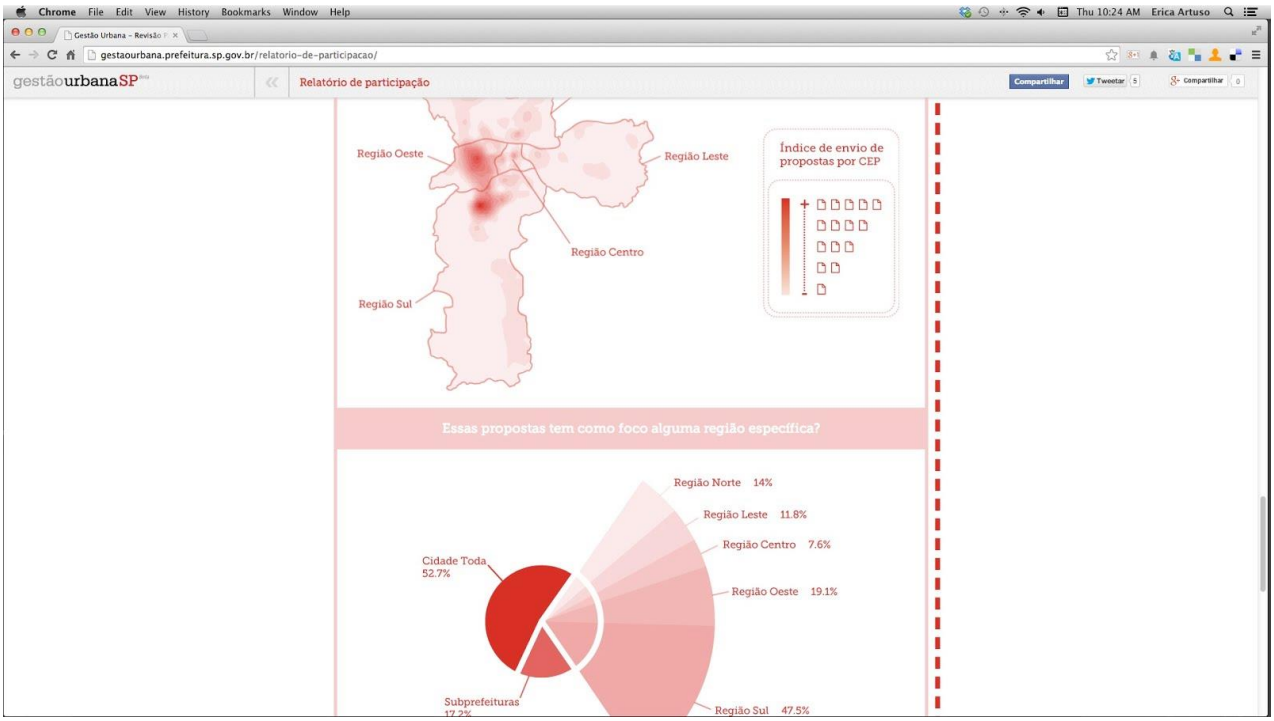


Screenshot from the crowdsourced mapping tool. IN: http://mapa.gestaourbana.prefeitura.sp.gov.br/

The third phase reunited the collaborations and propositions in one digital report (http://gestaourbana.prefeitura.sp.gov.br/relatorio), available online to the whole population, serving as an instrument of accountability and systematization. These three phases culminated in the fourth and last stage of the process, the online SMP draft (http://minuta.gestaurbana.prefeitura.sp.gov.br), an open software tool incorporated by the administration that enabled the public to compare the draught with the current law, proposing, in hence, contributions and additions, changes or exclusions from certain parts of the bill. 1822 contributions were made, to the draft, from workshops and Internet participation, also, restating a successful hybrid model of participation.

This unique process of policymaking in São Paulo, innovative, therefore, to the public policies thinking, created unprecedented advantages, likewise new forms of participation, accountability and democratic inclusion. The praxis of open technologies and agile methodologies provided a fast and low cost process. Also, it was a fundamental instrument to testify that the SMP revision was counting with the civil society's mobility, something questioned by non-governmental associations probably little acquainted with the whole process. An association even tried to prevent the SMP's legalization, based on the argument that its formulation was closed to the people's analysis; their argumentation fell apart because it was not substantiated. Actually, GestãoUrbanaSP's platform, all disclosed information, and the data collected with it showed that the process was very embraced by society - in both online and physically ways -, having 1.824.005 online views total in electronic channels between april and september 2013 and 19.265 participants in presencial events at the same period.

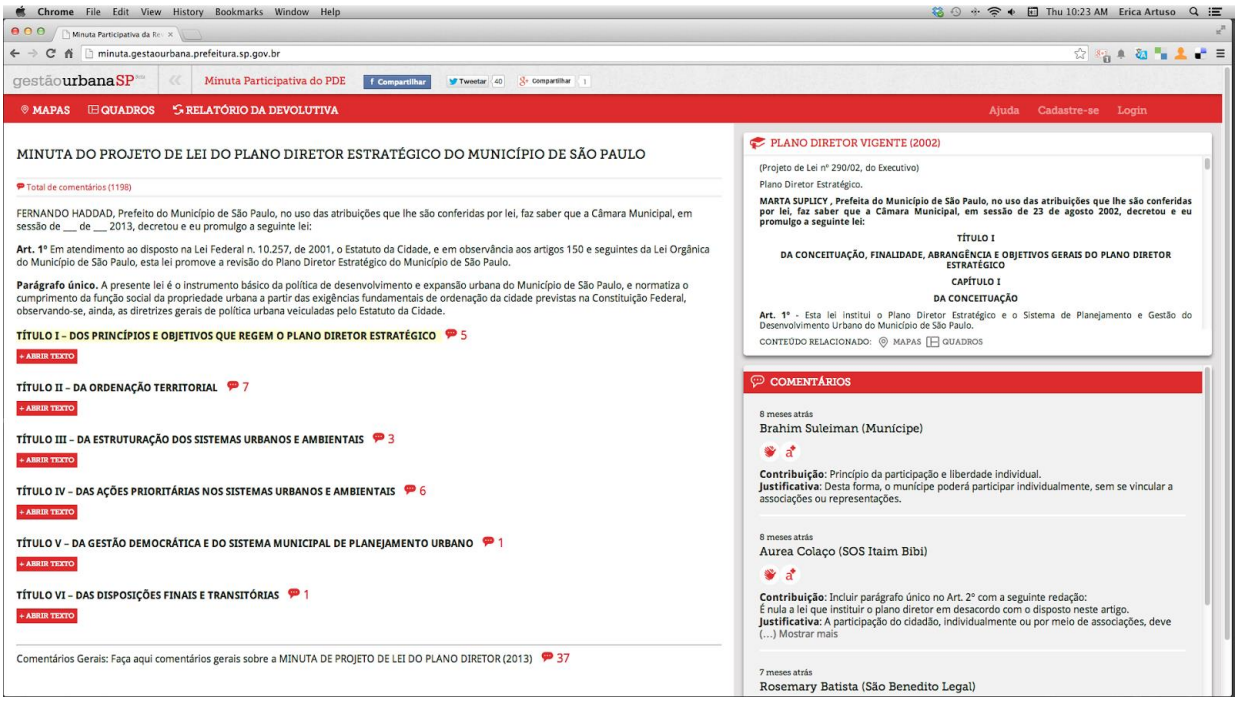
Through closer analyses, the conclusion is that a great part of digital collaboration was performed by two neighborhoods: Lapa and Santo Amaro, which represent two wealthy regions of São Paulo's city, which can be seen in the report screenshot below:



Screenshot from collaboration mapping: above, the darker red spots are representing Lapa and Santo Amaro's neighborhoods, representing more collaborators through GestãoUrbana's platform. IN: http://gestaourbana.prefeitura.sp.gov.br/relatorio-de-participacao/

In sum, we can say with certainty that the SMP was created with a whole new engagement from civil society and from representatives of several sectors of the city; their propositions were submitted in an easy and open way, what stated and permitted the participation of the entire city in São Paulo's SPM revision process.

This whole new set of information permitted the administration's Urban Development Secretariat, through their several departments, to elaborate the draft of the SMP's law. Published on the web, the draft was also accessible in GestãoUrbana's platform to the entire civil society through an exploratory interface: http://minuta.gestaourbana.prefeitura.sp.gov.br/.



Suggestions and interactions made by the public were inserted in the SMP's law draft, which could be accessed through the website http://minuta.gestaourbana.prefeitura.sp.gov.br

Future research or operational directions

Based on these great results that GestãoUrbanaSP's portal gave to the administration and SMP's formulation, the government is already expanding the experience to other levels of the municipal government. Also, the Urban Development Secretariat realized it needed to keep upgrading technologically in order to better handle these processes and, the administration is institutionalizing the Digital Core team responsible for this revolutionary change.

In that way, this whole process catalyzed the administration's openness, spreading free software in the administration along with the creation of an Intersecretarial Committee for the Open Government movement. The public vehicle of this committee is the São Paulo Aberta (http://saopauloaberta.prefeitura.sp.gov.br/) (Open São Paulo, in English) initiative, a program that seeks to embrace society in public policy's discussion through electronic channels and thematic and territorial actions within a partner network that supports, collaborates and shares the City Hall's actions and policies.

Also, the Café Hacker's project already mentioned is a product of this digital achievement. Created to attend GestãoUrbanaSP's necessities, the project was appropriated by the Municipal General Comptroller and it also has a structured website that reunites public data opened to discussion. The project promotes regular meetings between Communication professionals like journalists, programmers, and researchers interested in data that involves the city's administration and technicians or representatives aware of these procedures and information - people in general who deal with a big amount of data but doesn't necessarily know about the population's demands and needs regarding it. The last event conducted by Café Hacker was about the investment transparency of the administration regarding the 2014 World Cup.

The philosophy spread by GestãoUrbanaSP is stimulating other administrations to embrace the same digitalization process. With this new way of thinking public policies and how it can get to the citizen in an openly way, the "Programa de Metas" website - Administration's Program, in English - (http://metas.prefeitura.sp.gov.br) shows the administration's performance, in projects and budgets reports, even permitting the citizen to create its own visualization, through open data, of the government.

After all, with it, society can follow the government's actions and therefore watch it out closer, in an accountability process without precedents. Therefore, as one can notice, the GestãoUrbanaSP platform might have triggered a new paradigm of accountability, transparency and openness.

CONCLUSION

To perpetuate this digital culture that stimulates transparency and openness for good, whether in this government or future ones, the administration is developing and institutionalizing the Digital Core (like mentioned above) in order to invest even more in the open source, free software, social media, crowd sourcing and open data stimulated by this process.

The lessons are, by now, that the population and social movements reacted positively to the change, since the accesses were fruitful – to the process and to society. The administration learned that the political agenda has to incorporate transparency, openness and participation within the dynamics of a network society and, more than that, has fulfilled Constitutional rights like the access of information by the population.

As Pierre Lévy would say, we are experiencing a time of collaborative learning and knowledge that reverberates into a new kind of political identity. This identity is based on production, consumption and data processing in communication networks. This experience is a basic structure of Cyber democracy and therefore expanded participation of society in decision-making processes.

"Technology and technical relations of productions diffuse across every set of relations and social structures, permeating power and experience, changing them" (Castells, 2010, p. 32). For that matter, the information revolution changed the paradigm; we no longer live a vertical structure where the State "reigns" over society. Now, we are experiencing an horizontal structure of interaction, where society has the will of be a part and transform the State, participating in its public policies. This makes sense when one checks out the percentage of connected people around the world: developed countries have 71% average of their population connected. In developing countries, this amount is about 21% (according to http://www.cetic.br/). In Brazil, 102,3 million people are connected, according to the Index from Ibope Media. This is 50% of the population, what might not look great if compared with developed countries, but is very expressive to our reality.

The good news is: this percentage will only grow. And, with it, the social participation into public policies will also develop. Therefore, it is not extreme to say that we are witnessing a true revolution regarding social participation in São Paulo, and GestãoUrbanaSP's platform was our first evidence of success for that matter.

REFERENCES

Authored book:

CASTELLS, Manuel. THE RISE OF NETWORK SOCIETY. Wiley Blackwell, 2010

CONARGO, Noé. Democracia y nuevas tecnologías: límites del enfoque tecnocráctico para la comprensión de los problemas de la democracia representativa. Mediatika. 11, 2005.

DINIZ, Eli. Crise, reforma do Estado e governabilidade: Brasil 1985-1995. Rio de Janeiro: Ed.: Fundação Getúlio Vargas, 1997.

FOUNTAIN, Jane. (2005) Questões Centrais no Desenvolvimento Político do Estado Virtual. In: CASTELLS, Manuel (org). A Sociedade em Rede. Do Conhecimento à Acção Política. Imprensa Nacional - Casa da Moeda. Lisboa, 2005. p. 149-175.

Unpublished doctoral dissertation or master's theses:

STEFANI, Anita G. M. UTILIZAÇÃO DE TICs EM PROCESSOS PARTICIPATIVOS NO BRASIL SOB A ÓTICA DE CAPACIDADES DE GOVERNO. São Paulo, 2014.

Web site:

http://www.cetic.br/

http://www.ibope.com.br/pt-br/

http://g1.globo.com/sao-paulo/eleicoes/2012/noticia/2012/10/fernando-haddad-do-pt-e-eleito-prefeito-de-sao-paulo.html

http://www.webaula.com.br/index.php/pt/acontece/noticias/2874-pierre-levy-fala-dos-beneficios-das-ferramentas-virtuais-para-a-educacao

http://gestaourbana.prefeitura.sp.gov.br/

http://cafehackersp.org/

http://mapa.gestaourbana.prefeitura.sp.gov.br/

Marginalized Groups in ICT-enabled governance: Lessons from the Balkans

John Driscoll and Maren Larsen

Institute for International Urban Development, Cambridge MA, USA

Dritan Shutina and Aida Ciro

Co-PLAN, Institute for Habitat Development, Tirana, Albania

Abstract

Building off of original research on social sustainability in several Balkan cities, the following chapter seeks to identify the barriers facing marginalized populations to fully engage with e-governance mechanisms, and explore ways in which Skopje, Banja Luka, Durrës, Prishtina, and Sarajevo have formulated strategies to include society's most vulnerable in socially accountable policy formulation and governance. It also presents lessons drawn from the application of a conceptual framework that views social accountability as a means to achieve social inclusion through a governance dialogue among citizens, local government, and intermediaries, whose relationships and interactions can be enhanced by participation, transparency, and feedback/monitoring. Findings outline the need for greater flexibility and targeting to increase participation of vulnerable groups, while simultaneously increasing the transparency and strength of communication feedback loops.

Keyword: Vulnerable groups, social accountability, transparency, Balkans

INTRODUCTION

E-governance and the contribution of rapidly advancing technologies have increasingly taken center stage in the promotion of good governance. Unlike other public reforms that seek to increase internal efficiency and therefore focus almost strictly on increasing government's capacity to deliver services, e-governance and the combination of data analysis and citizen input platforms has the potential to transform the very nature of the relationship between citizens and their governments (Saxena, 2005). This transformation is happening at a time of increasing urbanization, which puts pressure on local authorities to manage urban development and provide sufficient and equitable access to services for marginalized communities within the formal and informal city, as well as access to opportunities to engage in civic life and participate in decision-making. These challenges can in turn compromise a municipality's ability to govern in an efficient and transparent way.

According to the UNDP, good governance principles can be summarized into three pillars: participation/inclusion, non-discrimination/equality and rule of law/accountability (UNDP, 2011). This paper draws upon work carried out by the authors and local study teams in five Balkan cities in 2012-2013 - Sarajevo and Banja Luka (Bosnia and Herzegovina), Skopje (Macedonia), Prishtina (Kosovo), and Durrës (Albania) - which focused on the first and last of these principles, namely the inclusion of vulnerable or marginalized groups in service delivery (including ICT-enabled services) and the social accountability and sustainability of such practices.

Several local governments in the Balkans have integrated aspects of e-governance into their operations, ranging from basic websites to sophisticated, interactive online platforms and even branded systems. The existence of such platforms, however, does not automatically translate into greater efficiency or greater social accountability. In fact, documentation of case studies in different regions shows that it is rare for the introduction of information and communications technology to produce any dramatic changes in accountability on its own (Fung, Gilman, & Shkabatur, 2010). While local authorities in several Eastern European cities have taken the first steps of implementing e-governance mechanisms to meet growing demand for accountable governance and policy-making, findings from the social sustainability assessment highlight diverse challenges to enhancing the quality and effectiveness of the supply. Some of the problems encountered by citizens and local authorities undertaking the audit included poorly functioning and out-of-date municipal websites and information that is deemed irrelevant to the enhancement of service provision and quality of life. In addition to outlining the challenges of ICT-enabled governance and proposals for overcoming them, this paper will describe the methodology used to identify such challenges, as well as the approach to developing solutions formulated by local stakeholders to improve upon the existing e-infrastructure and enhance its contribution to participatory policy practices and quality service delivery.

Some of the challenges encountered by citizens and local governments in this project are the result of local political histories, economic transitions, and social fabrics. Many of the shortcomings of current e-governance and social accountability mechanisms however are the result of much larger and widely applicable situations facing local governments, including the suburbanization of poverty through the emergence of informal settlements, deteriorating infrastructure, financial constraints, post-conflict reconstruction issues, and unequal or incomplete decentralization processes. Marginalized populations are often hit the hardest and as municipal challenges accrue, so too do their disadvantages brought on by spatial segregation, informality, unequal service provision, and unemployment.

The opportunities of these platforms and processes to hold governments accountable to their most vulnerable citizens, as identified by local stakeholders, bear lessons for other local government units and citizen groups concerned with effectively increasing participation, transparency, and communication in citizen-government relations. In addition to the recommendations one can propose based on this project experience, the manner in which the assessment framework allows all stakeholders to critically reflect on the progress and setbacks of e-governance and formulate targeted solutions to address shortcomings equally provides insights on the methodological considerations of assessing social accountability mechanisms.

These dual objectives of reflecting on the project process and sharing lessons from the project findings will be achieved by providing a brief description of the overall context in which the social audit took place. The main focus of the paper will center on the development of the social accountability framework and its application for assessing how municipalities respond to and include vulnerable groups. The

findings in each of the five Balkan cities will be laid out and analyzed before presenting the proposals formulated to address identified weaknesses in e-governance. Since the implementation of these participative proposals is at various stages across the five cities, other cases that highlight points made in the proposals will also be used to demonstrate some of the best practices emerging in the region. The discussion of findings will conclude with potential directions this work can be taken in the future and concrete lessons from the experience that can be integrated into other local governments' reflections and implementation of inclusive e-governance mechanisms.

BACKGROUND

The findings and theoretical framework proposed here for thinking about inclusive e-governance are the result of a participatory, city-specific assessment of social accountability in service provision undertaken by the authors in five Balkan cities: Banja Luka (Bosnia and Herzegovina), Durrës (Albania), Prishtina (Kosovo), Sarajevo (Bosnia and Herzegovina), and Skopje (Former Yugoslav Republic of Macedonia - FYROM). The assessment sought to identify existing social accountability practices, evaluate them, and work with a wide variety of stakeholders to draft proposals that incrementally enhance effectiveness and inclusivity of various mechanisms. Emphasis was placed on identifying trends across aspects of social accountability within each city, rather than engaging in a comparative exercise across cities. The project was undertaken between 2012 and 2013 as part of the World Bank's Europe and Central Asia (ECA) Sustainable Cities Initiative and the WB-Austria Urban Partnership Program (UPP) for Strengthening Local Governments in South-Eastern-Europe, funded by the UPP and managed by the ECA Social Development department, the ECA Urban Development department, and the World Bank Institute.

Through social sustainability audits conducted in the abovementioned cities, the authors and stakeholders developed a framework for analysis and formulated people-led solutions to enhancing the accountability of municipal authorities. The project included a specific focus on proactively addressing the challenges faced by marginalized groups through the identification of their needs and associated inequalities. ICT and related e-governance initiatives, therefore, are viewed as mechanisms for social accountability in this framework.

Social accountability is critical to the urban policy lifecycle to ensure that policies adhere to the principles of good governance. Participatory and transparent processes with built-in feedback mechanisms encourage the formulation of policies and initiatives that better respond to citizens' needs by providing an open and interactive platform through which they can affect governance. Provisions for the inclusion of vulnerable and marginalized communities, as this paper seeks to demonstrate, should be explicitly integrated into and alongside mechanisms of accountability in order to produce more socially sustainable policy outputs.

SOCIAL SUSTAINABILITY AUDITING

Drawing on existing literature and the social sustainability audit process, the authors and other members of the study team developed the framework illustrated below to capture the pillars of social accountability and the relationships at the core of various mechanisms, including those enabled by ICT. The framework centers on the relationship between citizens and local authorities but also acknowledges the important role

of civil-society organizations, NGOs, higher education institutions, and other intermediaries in facilitating dialogue between people and government and enhancing the relationship. The pillars of participation, transparency, and feedback/monitoring represent the dimensions used to develop social accountability indexes for each city in the audit and informed the work of participatory scenario workshops to address the weaknesses revealed by the audit. Participation can be further broken down into two sub-components: *engagement* of citizens in civic life through various initiatives (current demand) and *opportunities* available to citizens to participate (potential demand). Similarly, the transparency pillar is composed of two dimensions: *information availability* – the disclosure of local government information and decisions and *information accessibility* – the utility and ability to productively use this open data information. The organization and subcomponents of these pillars allow those interested in undertaking a social accountability audit to assess both the availability of mechanisms and the ability of people to use them.

The third pillar, feedback and monitoring, is a critical pillar that deserves equal consideration in e-governance mechanisms to enhance social accountability. Feedback and monitoring is the dimension concerned with ensuring effective two-way communication between elected officials, municipal administrations, and residents. Participation of citizens and transparency of local governments is less meaningful if the responsiveness and dialogue between the concerned parties is not fostered in a sustainable way.

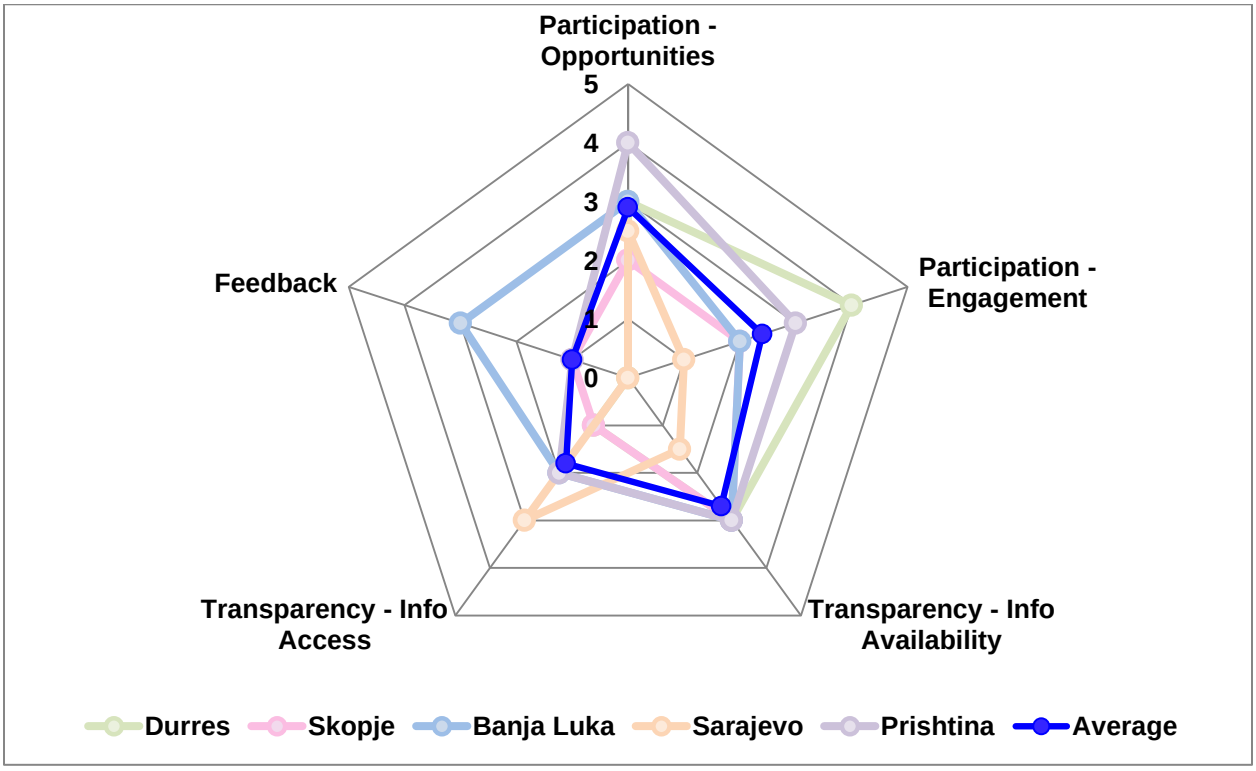
Figure 1: Framework for Social Accountability

Parallel to the development of this tri-part framework for addressing social accountability, the study team worked with local city teams to compile city profiles based on available data to understand the context in which social accountability mechanisms operate and to identify vulnerable segments within the population. The broad categories of vulnerable populations identified across the five cities through the city profiles included: youth, the disabled, the elderly, ethnic minorities, Roma communities, and women. Nearly all groups identified experience high rates of unemployment and poverty, contributing to the

determination of their vulnerability. Definitions for certain categories differ across Bosnia and Herzegovina, Albania, Kosovo, and FYROM, as well as the extent of their marginalization in different cities. These city profiles include those who are legally recognized as vulnerable as well as those who are vulnerable in practice. Despite minor differences among the five cities owing to historical and political contexts, vulnerability, although category-specific, was difficult to confine to particular parts of the city.

Using focus group discussions with members of the identified marginalized groups and in-depth interviews with representatives from the private sector, local government, and civil society organizations, the study team and local partners were able to obtain diverse perceptions of accountability levels and practices and gauge the use and availability of information and communication technologies. The information gathered through these focus groups and interviews enabled the study team to complete social accountability indices for each of the five cities. It also partly addressed the issue of non-existent or inconsistent data at the municipal and local level. Each index was composed of the five dimensions of the framework and each dimension had a score value based on "yes" or "no" responses to a set of five questions (the maximum possible score being five). The simplicity of the index allows comparison of cities with a common history and some shared characteristics. It is not meant to measure cities' accountability practices against an ideal, but rather allows for local tailoring to make it a flexible and useful tool for multiple stakeholders within a single municipality. The findings for Banja Luka, Durrës, Prishtina, Skopje and Sarajevo are presented below, as well as the five-city index average. (A detailed copy of the index questions and rationale is presented in Annex 1.)

Figure 2: Results of Social Sustainability Audit (See Annex 1 for details on scoring)



ICT-enabled Accountability Challenges and Issues

As visualized above, feedback and monitoring is the weakest pillar of social accountability in these cities. It is clear from the index that opportunities for citizen input and participation exist to varying extents and that local governments are relatively transparent in their publishing of municipal information. Limited "one-size-fits-all" channels of communication for citizens to express their needs and for relevant local authorities to respond however are impeding greater gains in social accountability and the application of ICT in different e-governance tools. Grievance redress mechanisms were closely examined to assess the level of feedback in municipal accountability efforts including determining the existence of such mechanisms and their effectiveness, usually dependant on a reasonable response time and use of complementary technologies to broaden communication engagement opportunities. Both Banja Luka and Prishtina – two cities that have integrated such mechanisms – had time limits for grievance responses that were generally abided by, though neither used multiple technologies nor tracking systems. In Banja Luka, legislative provisions in both jurisdictions required government authorities and institutions to provide official responses to submitted complaints within 30 days. In practice however, citizens reported that responses were often delayed or incomplete and perceptions of the IT tools implemented for feedback were not seen as mechanisms for collaboration. In Banja Luka and Prishtina, these mechanisms were largely underused by both citizens and institutions. Past neglect of citizen grievances have fomented distrust between citizens and local governments, leading citizens to approach newer, more complicated ICT-enabled tools with skepticism.

Another explanation of the low average score of feedback/monitoring in the assessment is the ad-hoc nature of regular evaluations of service provision through satisfaction surveys. Monitoring and performance measurement of municipal service provision did not appear to constitute a regular practice per se; rather it was an ad-hoc process required by specific projects in which the municipality was involved. Such was the case in Durrës. Businesses and/or citizens would be surveyed on a project basis, or alternatively, through various NGOs actively operating in the city. One exception to ad-hoc monitoring and evaluation is the annual citizen satisfaction survey administered in Banja Luka by the City Administration's Department of Public Utilities, Housing and Traffic.

The second lowest scoring category of assessment, on average, was the information availability dimension of transparency. All cities except Sarajevo scored higher on information availability than on accessibility, identifying a key area in which to make interventions to improve transparency and overall accountability practices. One of the underlying assumptions of ICT-enabled governance is that platforms are accessible and that the devices to access such platforms are useable by citizens. When looking at e-governance, particularly as it pertains to vulnerable groups, these city assessments demonstrate that it is not enough to simply make information available; citizens have to know how to access and use the ICT platforms and devices. The City of Banja Luka has an exemplary practice of centralizing information distribution in the Public Relations department in addition to producing a guide on how to access municipal information available on the city website. Low information accessibility is likely linked to ineffective or non-existent communication or feedback mechanisms, which fail to promote where and how citizens can access different services and documents. The nature of the content made available and ways of engaging may also influence accessibility. For example, in the case of Prishtina or Durrës, although the municipality has a website, it did not meet desired levels of city-citizen communication and interaction and was seen to be further marginalizing groups by not responding to their needs through diversified and user-friendly systems. Although all municipalities in the audit have opted for developing

an almost one-way online presence (website) for many years now, by underestimating the importance of feedback and monitoring mechanisms, they have failed to capture the potential of such ICT tools to improve accountability through the added communication value as opposed to existing analog practices, and have caused citizen distrust.

Several challenges to building social accountability into governance in Balkan cities, while not directly captured in the index results, were revealed through focus group discussions, documentation of institutional and legal frameworks, and interviews with local officials. One of the overarching issues hindering progress, acknowledged by citizens and local officials, is related to the decentralization of responsibilities to different levels of government. Unequal and incomplete decentralization processes have led to confusion over domains of competency belonging to local governments or the shirking of responsibility to other levels of government. This creates several bottlenecks in the accountability of service provision, which has, in some cases, engendered informal interventions to improve the situation.

Several of the municipalities in the study have smaller, local administrative units that are reportedly not functioning in a way that connects citizens to central city administrations or are inadequately implementing participation, transparency and feedback mechanisms to enhance accountability. In Bosnia and Herzegovina, these units are regarded as the closest to citizens, yet suffer from insufficient administrative and financial support, residential unfamiliarity or disinterest in their activities, lack of professional staff; and council member passivity hindering their ability to function efficiently (Galić & Predojevic, 2013). The two administrative units governing the capital – Sarajevo and East Sarajevo – further complicate the situation in a city whose local governance structure is divided between the Sarajevo Canton, the City of Sarajevo, and four *mjesne zajednice* (local municipalities) (Demir & Mehmedbašić, 2013). Energizing these local councils was seen as a potential means of including vulnerable groups in decision-making and community consultations, as they are seen as one of the most effective mechanisms through which to garner social accountability. Banja Luka proactively addressed this issue through short-term project activities aimed at capacity building for council members and interested citizens. Additionally, citizens are often unaware of the roles and functions of these local administrative units or don't know how to go about engaging with them.

Vulnerable Groups

Building inclusivity into governance, and particularly e-governance, first requires an identification of the excluded, or vulnerable groups. Identifying these groups and understanding their socio-economic, legal, demographic, and spatial situations and limitations is critical to developing ways of overcoming the barriers of access to the information and participation opportunities necessary to make e-governance work for vulnerable groups.

Focus group discussions, carried out in each city with participants belonging to one or more of the vulnerable groups mentioned earlier, revealed valuable insights into how communities become marginalized and how e-governance mechanisms can incorporate socially inclusive practices into their strategies and objectives. Marginalized groups are most susceptible to low-quality services due to issues such as informal settlement patterns for Roma communities, physical inaccessibility for the elderly, and overall lower disposable incomes with which to access quality basic services. In the Western Balkan countries, a significant proportion of the population can be defined as "marginalized" in one way or another. Youth populations in the South East Europe region, for example, experienced rates of unemployment in 2013 averaging 49%, with rates reaching 55.3% in Kosovo and 62.8% in Bosnia and

Herzegovina (The World Bank, 2014). Furthermore, mapping efforts in each city shed light on the difficulty of spatially representing different groups, other than those living in informal settlements. Targeting vulnerable communities with location-based interventions may not, in fact be as effective as more municipal-wide initiatives. Marginalized citizens are scattered throughout the municipality and live in different housing and settlement typologies in both urbanized areas and emerging settlements in suburban and peripheral locations. Improving service delivery and accountability for vulnerable groups in the Balkans, therefore, is about improving the lives of large segments of city-wide populations in both formal and informal areas.

As far as existing e-governance mechanisms are concerned, marginalized groups are, to varying degrees, locked in a cycle of social exclusion that hinders their participation in social accountability processes. If an administration hasn't fostered participation and transparency and established feedback mechanisms to create a relationship with citizens prior to the introduction of ICT tools, e-governance has shown to be unable to build that relationship from scratch, especially with vulnerable populations who, given their circumstantial limitations, are not the early adopters of such tools. Many speak of the "digital divide" in terms of Internet access, but it is important to remember that when it comes to participation and communication with local governments, vulnerable groups experience other types of divides caused by inconvenient office hours, time-consuming processes, or language barriers, which discourage their civic participation. Technological constraints can work to further exclude those with already low levels of engagement in local governance, but other dimensions of e-governance can equally be leveraged by local authorities in a tailored way to alleviate some of the political marginalization of these groups, as many of the city proposals demonstrate.

Findings from the assessment also highlight the need to reformulate thinking about the digital divide as a "demand side" problem exclusively. The digital divide understood in this context as the inability to efficiently access or use information technology for increased social accountability is both a demand (citizen) issue and supply (city government) issue. Balkan cities have adopted ICT tools presented on municipal websites aimed to provide information, services or communication with citizens, though not all their functionalities are operational or regularly updated. Lack of information and knowledge exists on both sides as local governments often have the capacity to index information but not necessarily process it. Increased capacity can add value to these ICT systems, particularly in shortening the distance between local government and citizens. In Skopje, the assessment revealed that staff is not adequately trained to respond to the demands of the citizens despite the existence of ICT systems. Information and participation providers need to be better informed, educated and trained while the service users need to be better informed about their rights and ways of engaging with ICT-platforms and local authorities.

Proposals, Solutions and Recommendations

Upon assessing the various cities' levels of participation, transparency, and feedback and identifying and gathering qualitative information from vulnerable groups, the project moved to leverage the results of the audit for actionable change. Participatory scenario development workshops were held in each city to bring together different stakeholders from local government institutions and civil society, including marginalized citizen representatives. The goal of these workshops, which all took on their own theme based on the outputs of the audit, was to discuss appropriate social accountability mechanisms and how they could be integrated into each city's existing systems and processes. Because the audit had already done much of the work of identifying problems, the methodology of the workshops focused on

developing solutions. To do this, participants were giving problem and solution cards, informed by results and findings of the audit, as a starting point for elaborating agreeable and realistic scenarios. Different tools to amplify citizen voices, enhance administrations' capacity to respond to needs, and strengthen communication channels in the citizen-government relationship were proposed to address the development challenges in each city. The table below summarizes the proposals that came out of the different workshops.

Figure 3: Social Accountability Proposals

	Banja Luka	Prishtina	Sarajevo	Durrës	Skopje
Enhance Participation	Web and SMS platform for monitoring transport services for vulnerable groups	Upgrade City Website	Information Center on governance structures, rights, obligations and services.	Incorporating Social Accountability in the City Development Strategy	Citizen Database
Increase Transparency	Information Desks on employment opportunities	Citizen Charter and Calendar of activities	Local Community Councils Revitalization	Participatory Budget	Representation for Disability groups
Strengthen Feedback and Monitoring	Upgrade City Website	Monitoring as part of City Modus Operandi	Public Fund for Social Entrepreneurship	Upgrade City Website	48-hr response requirement for citizen queries

Source: (I2UD & Co-PLAN, 2013)

Some of the overarching themes in these proposals include greater incorporation of intermediaries, a key actor at the center of the social accountability framework; enhanced responsiveness of local authorities to increase participation and transparency; and specific accountability mechanisms oriented towards marginalized or informal users.

Associations of citizens and other issue specific CBOs and NGOs represent an important mechanism for including vulnerable and minority groups in urban decision- and policy-making. These organizations can provide important legal and policy information to their members and directly represent their interests in governmental working groups or committees, fostering a more productive citizen-government relationship and dialogue. They also tend to have greater institutional memories than city governments and can provide consistency in social accountability and inclusion work across changing administrations and election cycles. For example, citizen associations have proven their importance within the Sarajevo Canton Government, as people with disabilities and Roma see their associations as sources of information about their rights and how to exercise them.

In cities, where focus group participants felt underrepresented in city decision-making, NGOs and CBOs could begin to fill that void and voice the concerns and interests of marginalized groups in an organized way that local governments can more easily interact with and understand. Findings from the audit show that while several NGOs and CBOs already exist to represent marginalized populations, challenges arise in their ability to provide the critical link for citizens to the municipality. One of the concerns raised by citizens in certain cities was the management of these associations, claiming issues such as the promotion

of personal objectives over group interests and the mismanagement of funds. One way of overcoming this concern could be for the neglected local administrative units mentioned earlier to begin to function as intermediaries between citizens and broader urban governments and become a target of investments for better vertical communication and dissemination. Skopje expressed interest in pursuing this strategy, including the revitalization and involvement of urban communities and homeowners associations.

Stronger reliance on (and integration of) intermediaries in the actionable framework for enhancing social accountability has been advocated for within the pillar of feedback/monitoring. Enhancement of internal feedback and monitoring systems is the most important step municipalities ought to initiate in relation to the responsiveness to citizens' requests and complaints. It can also catalyze the real involvement of citizens in the strategic planning process, rather than procedural participation, if citizens know that their voices will be heard and have the potential to be acted upon. Efficient feedback and performance monitoring mechanisms can therefore bring about improvement in the functioning of participation and transparency mechanisms to increase social accountability. Having a third-party group manage an ICT-enabled monitoring platform, as evidenced in the example illustrated below, can lead to better maintenance and promotion of these critical feedback practices. For enhanced inclusion, such intermediaries should also be capable of implementing alternative, low-tech interventions to improve social accountability.

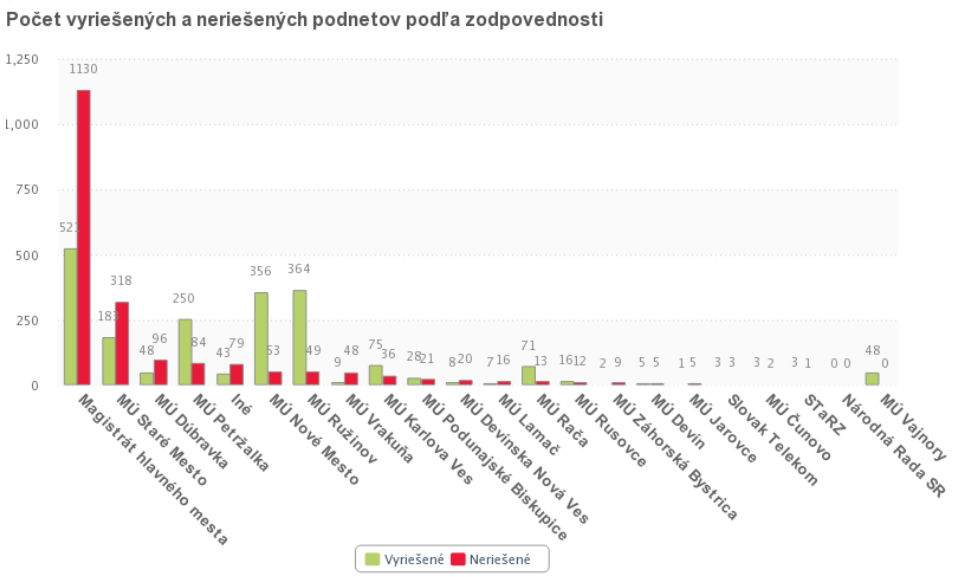
Complementary, low-tech interfaces are critical to building participation opportunities and information channels in relation to marginalized communities (Morgan, 2013). One of the primary takeaways from the social sustainability audit was that when it comes to social accountability and ICT-enabled tools, one size does not fit all. Different communication conduits are necessary to reach diverse groups of vulnerable citizens. For example, the elderly and disabled often reported difficulties accessing decision-makers. Youth on the other hand, are particularly passive and untrusting in the decision-making process. With an emphasis on tools that cater to vulnerable communities at their different levels of civil engagement, cities participating in the audit proposed such mechanisms as Web-SMS monitoring of public transportation to increase accessibility for the disabled in Banja Luka and linking up with middle and high schools to promote civics and active volunteerism in Skopje.

Prior to the scenario development activities that produced proposals like those mentioned for Banja Luka and Skopje, participants heard presentations about the use of ICT for increased social accountability and learned about different ways in which ICT has been used in other countries in the region to increase participation and transparency. This occurred through case study presentations with the goal of building capacity amongst stakeholders to understand the potential role of ICT in improving social accountability. One of cases that participants took particular interest in was System 48 developed in Indjija, Serbia and implemented in Indjija as well as Strumica, Macedonia. This management system is unique in Southeastern Europe as it addresses the feedback/monitoring pillar of accountability in an effective way while improving the internal efficiency of local authorities to coordinate their responses. System 48 institutes a two-day requirement for an institutional response to citizen grievances (Bodirožić, 2013). The system promotes better management practices at the urban administrative and institutional level, and successfully integrates regular performance reviews and monitoring of services.

Another type of best practice that has emerged since the end of the study and addresses the pervasive, region-wide issue of disconnected relationships between citizens and local authorities and weak or inefficient feedback/monitoring mechanism is the Slovakian platform "Odkaz Pre Starostu" (*Message to the Mayor)*. Inspired by the UK's platform "Fix My Street", the platform is administered by an

intermediary, non-partisan civil society organization (Inštitúť pre dobre spravovanú spoločnosť – *Slovak Governance Institute*). Photographs of problems, citizen descriptions, and localization within cities are formulated into complaints, organized on the platform, and channeled to the responsibility municipal entity to take action. Citizens receive confirmation upon receipt of their complaint through the dispatching system and the complaint becomes visible to others on the platform. Citizens can follow the complaint on the portal through status labeling which indicates whether the complaint has been submitted, checked, settled, or decided on by other means. Periodically, issues that go unresolved are removed from the portal and the administrators from the Slovak Governance Institute organize groups of volunteers to repair playgrounds, collect garbage, plant flowers, and address other unresolved issues. Message to the Mayor is active in 15 Slovak towns and villages, representing 31 municipalities.

Figure 4: Number of resolved and unresolved submissions by responsible entities in Bratislava (Slovak Governance Institute, 2014)



(Green stands for "resolved"; red stands for "unresolved")

The mediating role played by the administrator of the platform strengthens the citizen-government service relationship through the creation of a productive and un-biased space for citizens to make demands and for local authorities to respond by the best available means. The user-friendly website and its mobile applications have facilitated participation to the extent that local authorities throughout Slovakia can no longer afford not to respond to the complaints filed through the platform. Municipal authorities in Slovakia now unofficially compete to respond to the most citizen demands and the positive reinforcement of a culture of accountability in citizen-government relationships has been embedded by the process. The platform administrators have also held events targeting the youth population through presentations in schools and an activity for high school students to identify the problems in their city. This sort of explicit engagement in schools to ensure inclusion and mediation by a civil society organization can be highlighted as a best practice of social accountability in e-governance.

Future research or operational directions

The proposals that were elaborated as an output of this project are at various stages of consideration or implementation. The cities participating in this particular study considered different administrative departments to lead in social accountability activities. In Durrës for example, the Department of Development Projects took responsibility for the audit and planned to include "Social Accountability" as an integral part of the revised City Development Strategy, while in Prishtina the Director of Administration took the lead. Intermediaries, such as civil society organizations or educational institutions, can also carry out such audits with the advantage of having greater institutional memory than administrations that frequently change leadership. City administrations or independent organizations could begin to move towards action on these ideas by prioritizing proposals in alignment with existing municipal strategies and drafting business plans to secure external funding.

More theoretically, the social accountability framework developed concurrently with the project methodology has proven its utility in the determination of urban challenges, their inter-relationships, and inclusive problem solving to heighten participation, increase transparency, and strengthen feedback/monitoring. The audit's capacity to diagnose these issues and visualize findings in a way that is easy to understand for all stakeholders encourages wide participation and engagement to develop solutions. The study team believes this methodology has the potential to be repeated in different cities and across regional contexts to reveal not only local challenges and solutions, but also broader lessons about e-governance.

This methodology, because of the focus on urban management and service delivery, can be employed by municipalities to assess the quality and level of access to services in specific neighborhoods, larger districts or metropolitan areas. Although tailored to introduce good practices in social accountability and inclusion supported by the ICT sector, the methodology can also be used in other sectors, such as infrastructure or urban planning. In addition, the social audit can explore issues and concerns that are often not considered in traditional consultation processes; the methodology is open and solution-focused which is helpful when considering projects that can be contentious by the nature of their intervention. The techniques employed through this methodology utilize scenario planning, a tool to improve open and informed deliberations on urban policy and management practices in a context of urbanization that brings greater uncertainty and larger numbers of stakeholders. Based on the experience, processes, and feedback received from the various parties involved in the Social Sustainability Audit, (including local authorities, citizens, civil society, private sector and media) the following methodology is suggested and can be adapted by municipalities based on ranges of available data and capacity.

1) Mapping Urban Management – Service and Citizen Vulnerability

Efforts to integrate inclusive ICT into governance and policymaking can begin with a synopsis of key development challenges, opportunities, identification of existing social accountability practices, and mapping of vulnerable communities. In the Audit, this exercise culminated in the formulation of the city profiles mentioned earlier, and informed the development of the index for measuring accountability practices. A brief synopsis report is important to obtain a clear, up-to-date snapshot of the context and current situation in the municipality relative to vulnerability, accountability, and the particular service sector that the local authority seeks to improve. As a result, such a report can contribute to highlighting additional inter-related fields that need improvement such as institutional organization, ICT and file-keeping/statistics, among others. In this Social Sustainability Audit experience, the process was conducted

by two specialized NGOs - a model that should try to be replicated to minimize bias.

2) Engaging and Mobilizing the Key Interest Groups in the City

Because this methodology specifically deals with marginalized groups, the engagement of civil society organizations is crucial, as they tend to have good community outreach strategies and institutional/organizational memory of the issues and interests at stake. The contribution of qualitative information in the methodology, collected through focus groups and in-depth interviews with such diverse stakeholders as community representatives, municipal officials, central authorities, and members of the private sector, cannot be overstated. Originally conceived to overcome the lack of available data at the city and community level, the organization of fieldwork in this way established relationships that were leveraged throughout the project lifecycle, allowing the study team to continuously obtain further insights and validate findings through consultation. There is still critical "hard" quantitative information that needs to be considered when it is available—a challenge for municipalities where both the economy and physical development is characterized by informality. Identifying and taking stock of different institutional and legal frameworks is also important in focusing the accountability index questions so that findings and eventual interventions can be aligned with existing strategies to better reach vulnerable communities.

3) Setting the Agenda for Change through Participatory Approaches

Based on the findings from the first two stages, municipalities (or third-parties collaborating in the process) can employ participatory practices, in order to discuss and agree on a number of concrete steps to be undertaken in order to address, in part or in full, the issues raised. Participatory Scenario Development Workshops held with all stakeholders benefited from consultations in the preliminary phases by allowing discussions to move quickly from expressing grievances to solving problems. From this scenario development exercise, action plans can begin to emerge. It is important that such action plans are time-bound, measurable, and have clearly assigned ownership to them. For accountability purposes, such action plans should be made public, and revisited in case of developments. If working in more than one area within a municipality or in multiple municipalities, a regional workshop can be held as a concluding activity for regional stakeholders to interact and learn from each other in the spirit of knowledge sharing.

4) *Monitoring and Evaluation*

As proposals and plans become actionable, it is important to ensure that action plans will be pursued and to exercise accountability and transparency practices in the very process of enhancing the commitment of urban managers to the social concerns and priorities of diverse stakeholders through the targeted improvement of ICT-related mechanisms.

Conducting such an audit around the pillars of social accountability provides a self-assessment that can help a municipality to launch a discussion on these issues with its partners. The assessment index may also find utility as a performance assessment/evaluation mechanism to evaluate implementation progress of projects in cities where an audit has already been conducted. Undertaking the audit again in one of the participating cities could provide information for important longitudinal analyses to determine the effects of interventions on the different dimensions of accountability.

Different lessons from some of the shortcomings of ICT-enabled governance, particularly identified through this audit in feedback/monitoring, can be useful starting points for thinking about ICT in a context of policymaking across cultural and geographic boundaries. In attempts to integrate ICT into urban policymaking and implementation in developing countries, for instance, local authorities can consider some of the mechanism characteristics reviewed in the Balkans audit, such as time limits for government responses to citizen inputs and regular monitoring/evaluation of services and policies across the city. The time balance question and regular monitoring were key features of System 48, which contributed to its wide success, and were among the most popular proposals to enhance engagement of vulnerable populations with ICT and accountability practices.

CONCLUSION

The process of working with different groups of stakeholders to identify and craft proposals to enhance municipal social accountability has provided important lessons that should be considered as other local authorities and citizens implement their own e-governance mechanisms to enhance urban policy design and service delivery.

Balkan cities have made significant strides in the implementation of e-governance for enhanced social accountability. There remains, however, room to improve existing systems to expand their reach and utility for the most socially and economically vulnerable members of society. As evidenced in the analysis of findings from the social sustainability audits, the mere adoption of e-governance mechanisms does not automatically translate to enhanced citizen participation, local government transparency, and monitoring of practices and services. This is especially the case for vulnerable and informal communities that are not fully integrated into urban service delivery and are beyond the reach of e-governance seeking to improve the management of these services.

Many of the issues identified in the audit pointed at more fundamental issues with the citizen-city social contract that need to be addressed to make the supply of information more relevant and accessible, thus fostering demand and re-establishing a public dialogue. Similarly, if social inclusion is not an explicit aim of such tools and platforms, enhanced service provision and participatory decision making can overlook vulnerable groups or, at worse, work to further marginalize them politically. Furthermore, inclusionary measures should be harmonized and aligned with existing systems and strategies to ensure better coordination and implementation of social accountability intentions.

Another lesson of this study is that closing persistent gaps requires dedicated resources to build capacity on both the supply and demand side of e-governance and the continued development and implementation of complementary communication channels. The “digital divide” is as much of an issue on the demand side of governance as it is a supply side issue. Although there are many ICT tools integrated into the municipal administrations of Skopje, Banja Luka, Sarajevo, Prishtina, and Durrës, often through institutional websites, not all cities have the technical capacity to properly, maintain, process, and update information on these platforms. Thinking about the digital divide needs to be re-conceptualized in terms of e-governance through an understanding that efficient social accountability is dependent on citizens having the right tools and knowledge to access information and participate in decision making – the demand side, as well as a municipality’s internal capacity to respond to and process citizen inputs – the

supply side. Enhancing feedback and monitoring mechanisms will present opportunities to strengthen both sides of the exchange.

The power of information as it is leveraged for e-governance is dependent on what municipalities, citizens, or community organizations are able to do with the information and, as this socially inclusive framework posits, how it can be tailored it to meet the needs of different groups. If there is one all encompassing finding from the application of an approach that looks at ICT-enabled accountability mechanisms as they relate to vulnerable communities, it is that one size does not fit all. The methodology applied to reach this conclusion finds its strength is its ability to diagnose which dimensions of social accountability pose the greatest challenges and formulate diverse interventions to overcome shortcomings through a participatory and inclusive engagement process. The necessity for a range of mechanisms is evidenced in the Balkans by the several issues emanating from widespread informality. Social accountability tends to focus on the formal city and formal mechanisms, which is why it is important to ensure ways of working and communicating with vulnerable communities to proactively address both formal and informal issues.

Many of the cities studied here are on track to increase the number of opportunities to engage citizen participation and share information with constituents. Participation opportunities and the availability of information lose their meaningfulness in relation to social accountability if they are not promoted and made widely accessible to all citizens. Developing an e-governance framework that incorporates accountability, social inclusion and sustainable practices into urban governance provides a useful starting point for municipalities. While social accountability has proven a challenge in all five Balkan cities studied, commitment and engagement of local government, intermediaries, and citizens can create communication channels within e-governance mechanisms that guarantee participation, transparency, and feedback.

REFERENCES

Bodirožić, M. (2013). System 48 in Indjija, Serbia. *ECA Sustainable Cities Regional Dissemination Workshop.* Skopje. Retrieved July 10, 2014, from http://i2ud.org/wp-content/uploads/2013/03/Indjija_Sistem48_HolidayInn_Skoplje.pdf

Demir, E., & Mehmedbašić, D. (2013). Sarajevo Social Accountability City Note. *ECA Sustainable Cities Regional Dissemination Workshop.* Skopje. Retrieved July 10, 2014, from http://i2ud.org/wp-content/uploads/2013/03/Presentation-Sarajevo.pdf

Fung, A., Gilman, H., & Shkabatur, J. (2010). *Impact case studies from middle income and developing countries: New Technologies.* Open Society Foundation, Transparency & Accountability Initiative, London. Retrieved July 10, 2014, from http://www.transparency-initiative.org/wp-content/uploads/2011/05/impact_case_studies_final1.pdf.

Galić, N., & Predojevic, N. (2013). Banja Luka City Note. *ECA Sustainable Cities Regional Dissemination Workshop.* Skopje. Retrieved July 10, 2014, from http://i2ud.org/wp-content/uploads/2013/03/Banja-Luka-City-Note.pdf

I2UD & Co-PLAN. (2013). *Final Reflections. Social Sustainability Assessment. ECA Sustainable Cities Initiative.* Retrieved June 27, 2014, from http://i2ud.org/wp-content/uploads/2013/10/ECA-final-project-brief.pdf

Morgan, C. (2013). ICTs and Social Inclusion. *ECA Sustainable Cities Regional Dissemination Workshop*. Skopje. Retrieved July 10, 2014, from http://i2ud.org/wp-content/uploads/2013/03/ICTs-and-Social-Inclusion-cm-i2ud.pdf

Saxena, K. (2005). Towards excellence in e-governance. *International Journal of Public Sector Management, 18*(6), 498-513.

Slovak Governance Institute. (2014). *Statistiky*. Retrieved July 10, 2014, from Odkaz Pre Starostu: http://www.odkazprestarostu.sk/

The World Bank. (2014, May 26). *Youth Unemployment in South East Europe: Averting a Lost Generation.* Retrieved July 10, 2014, from World Bank News: http://www.worldbank.org/en/news/feature/2014/05/26/youth-unemployment-southeast-europe-averting-lost-generation

UNDP. (2011). Governance Principles, Institutional Capacity and Quality. In B. f. Policy, *Towards Human Resilience: Sustaining MDG Progress in an Age of Economic Uncertainty.* New York: United Nations.

ANNEX 1 – SOCIAL SUSTAINABILITY INDEX

Participation - Opportunities	Rationale	yes =1 no = 0
1. Does the city hold consultation meetings with the public?	Face-to-face interaction with city leaders was considered valuable in an environment plagued by bureaucratic blocks. These consultation meetings could be anything from open door mayor days to public hearings.	
2. Are there elected neighborhood councils or equivalent structures?	Local Community Council, Local Administrative Units, etc. were widely recognized as key intermediaries, yet not currently operating to meet this potential. Public election of members could make them more accountable to their constituents and lead to more efficient councils.	
3. Does the city administration present municipal budgets to neighborhoods as part of the formal fiscal preparation cycle?	The city should have an adopted mechanism to obtain citizen input on budget allocations in relation to service provision, infrastructure and neighborhood facilities. Making presentations to neighborhood councils and community groups provides opportunities for gathering neighborhood priorities that are not often possible in larger Council public hearings.	
4. Are vulnerable groups consulted when devising strategic policy documents?	To determine whether marginalized groups are part of the city's decision-making process for city-wide policies such as the City Development Strategy.	
5. Does the city have a program to engage with CSOs when reaching out to vulnerable groups?	To assess the city-intermediary relationship in working to increase visibility and outreach to these groups to vulnerable groups. "City" meaning the municipality or other local authority.	
	Participation -Opportunities total score	/5

Participation -Engagement	Rationale	yes =1 no = 0
1. Are minority or vulnerable communities represented in the current city council?	Within multi-ethnic context of the ECA region, to gage the level of diversity and participation of minority community on the city council.	
2. Are NGOs actively engaged in representing the interest of vulnerable groups?	To determine whether vulnerable groups have a go-to organization to provide support as well as pursue their interests in the public arena.	
3. Are neighborhood councils (or similar structures) effectively linking the citizens to the city (or municipality)?	To evaluate the degree to which citizens consider their interests taken into account in neighborhood level governance/projects.	
4. Are there youth-based outreach programs for civic engagement?	To determine the level of engagement and civic education of the youth as a strategic cohort.	
5. Is the website considered to be a reliable source of information?	To measure the effectiveness of the city's main ICT portal/communication channel.	
	Participation - Engagement total score	/5

Transparency - Info Availability	Rationale	yes =1 no = 0
1. Are citizens given sufficient notice about upcoming city council meetings?	To determine whether city council meetings are open not only in theory but also in practice, since a common finding was that citizens cannot attend meetings because they find out about them too late.	
2. Are municipal council decisions posted online in a timely matter?	To determine whether the outcomes of council meetings are made available even to those who cannot attend.	
3. Are city budgets available online?	Budget transparency as part of open government practices.	
4. Does the municipality have an open data policy?	Meant to gage how open the municipality is to making data public from different sectoral programs (such as schools, hospitals)	
5. Are CSOs required to have open data practices?	To determine whether there are transparency stipulations for intermediaries.	
	Transparency - info availability total score	/5

Transparency - Information Access	Rationale	yes =1 no = 0
1. Is there an active information desk available for citizen information?	Another common suggestion during the field activities: a physical information booth with helpful staff to help citizens find the information they need without having to navigate complex city administration structures.	
2. Is there a document (charter) outlining the	Citizen charters have been a successful tool for eliminating information	

Transparency - Information Access	Rationale	yes =1 no = 0
responsibilities of both government and citizens that is publicly accessible?	asymmetries and misunderstandings.	
3. Does the municipality provide support to citizens regarding access or navigation of its ICT tools?	To maximize the impact of using ICTs, citizens should be able to manage at a basic level the technology from the user end, thus addressing the digital divide.	
4. Are there ICT training opportunities for public employees?	To maximize the impact of e-government and other such tools, government employees should be able to manage at a basic level the technology.	
5. Does the city utilize the various forms of media to disseminate information?	Throughout the workshops, solutions included using the available slots in TV, radio and print media to disseminate city information. Local governments should take advantage of this possibility given that citizens embrace the media option.	
	Transparency - Access total score	/5

Feedback/Monitoring	Rationale	yes =1 no = 0
1. Is the time limit for grievance response abided by?	The effectiveness of grievance redress mechanisms depends on a mandatory response time that is satisfactory to the users and implemented.	
2. Do grievance/ complaint systems use multiple types of technology?	ICTs can be very valuable in extending engagement opportunities, but there need to be a set of options to accommodate the varying levels of technology access among groups.	
3. Is there a system for tracking the responsiveness to grievances of various departments/service providers?	To determine whether the departments responsible for redress mechanisms are functioning effectively.	
4. Is there an annual citizen service satisfaction survey?	Regular evaluations of city-wide or specific department's functioning in terms of service provision.	
5. Is the city website updated regularly?	To determine whether the city website can be part of a fluid communication system, information needs to be kept relevant, especially the Frequently Asked Questions section.	
	Feedback/monitoring total score	/5

PART 2 - GOVERNANCE AND E-TOOLS

CHALLENGES

QUICK FACTS

POLICY POINTS

Geofencing as a Tool for Urban Planning

Dr Anthony Ijeh

University of Buraimi, Sultanate of Oman

Abstract

Overview: This chapter puts forward a conceptual framework to improve citizen E-Participation in urban planning processes through the application of Location Based Services (Geofencing). The conceptual framework aims to strengthen the capacity of developing countries in applying New Information and Communications Technologies like opinion maps for citizen engagement. **Purpose:** The purpose of this chapter is to present the conceptual framework which offers a perspective of Geofencing in Urban Planning and design that improves access to information and public services as well promotes E-Participation in policy making for the empowerment of the individual citizen and for the benefit of society as a whole. **Summary:** The chapter will therefore consider existing technologies and models used in the design and development of E-Governance. In addition the chapter will also consider and define the issues with the use of existing technologies and models for E-Participation. Finally the chapter will present a conceptual framework to mitigate the barriers in existing models which cause low E-Participation in the urban planning and design process.

Keyword: Geofencing, E-Participation, E-Governance, Urban Planning and Design, Enumeration

INTRODUCTION

Among the collective outcomes of Millennium Development Goals (MDG) set for attainment in 2015 is global sustainable development with collaborative governance as the basis for urban planning and design. In order to actualise the common objective the United Nations HABITAT (UN HABITAT) and Future Policy Modelling (FUPOL) advocate citizen engagement and participation in public policymaking to enable people contribute to issues which affect their daily lives like proper housing and growth of slums, inadequate and out-dated infrastructure – be it roads, public transport, water, sanitation, or electricity – escalating poverty and unemployment, safety and crime problems, pollution and health issues, as well as poorly managed natural or man-made disasters and other catastrophes due to the effects of climate change. By contributing to policy and decision making through Electronic Participation (E-Participation), citizens can govern themselves using suitable New Information Communication Technology (NICT) to decide which public services are provided and how.

This chapter offers a perspective of Geofencing in urban planning and design. The perspective uses the processes which define the delivery of data and information services where the content of those services are tailored to the current or some projected location and context of a mobile user to increase the capacity of citizen participation. In so doing the perspective provides an alternative to the current models of E-Participation and E-Governance. The Geofencing perspective provides a way of dealing with the

challenges of E-Governance caused by human behaviour by placing E-Participation within the context of Location Based Services (LBS). The Geofencing perspective is the intersection of Geographical Information Systems, Spatial Databases, Internet, World Wide Web and New Information Communication Technologies.

E-Participation is the term used for participation processes involving New Information Communication Technologies (NICT). It has grown out of the resolve by member countries of the United Nations to work collectively for more inclusive political processes which allow authentic participation by all citizens and the belief in the right of the public to have access to information through participation. The resolve enables this chapter define E-Participation in the context of urban planning and design as the use of NICT to expand and deepen political participation by empowering citizens to contribute to decision making processes. By participating in decision making processes for urban planning and design, citizens are empowered to influence decisions that affect and concern them. The benefits to citizens and government alike is not only a transparent and open government but a decision making process that takes the view of all into account. These benefits are in the context of the agreed Millennium Development Goals (MDG) being pursued and more recently Post 2015 citizen's initiative.

This chapter was motivated out of passion for good governance and public administration and a personal question the author wanted to answer. Which was to know if it was possible to use Geofencing to overcome the low E-Particpation of citizens in decision making processes? This chapter asserts that Location Based Services can enhance participation in decision making processes, in that citizens can participate in a decision making process by virtue of their location in addition to their Enumeration. The conceptual framework is not a final solution to low E-Participation of citizens but supports the debate on how best to increase the use and capacity of E-Governance. It offers an innovative approach to E-Participation and is realistic and focused on its aim. The chapter presents a conceptual framework that provides mitigation to a real world problem.

This chapter will establish and develop a new framework to improve the E-Participation of citizens in urban planning and design processes using Location Based Services which fulfils the best practice requirements of International Standards Organisation (ISO). The focus is on citizen behavior in real world scenarios and takes into consideration the instability of the surrounding Location Based Service (LBS) context and the need for continual improvement of the Enumeration context. The justification for the chapter is that it is linked to Millenium Development Goal (MDG) 1: Urban poverty reduction, MDG 7: Ensure environmental sustainability and MDG8: Develop a global partnership for development.

In summary the chapter presents a conceptual framework that enables citizen E-Participation to develop through the application of Location Based Services (Geofencing). The goal of the conceptual framework is to improve access to information and public services as well promote E-Participation in policy making for the empowerment of the individual citizen and for the benefit of society as a whole. In order to do so existing technologies and models used in E-Governance and E-Participation will be looked at and discussed. Finally the conceptual framework will be used to show how E-Participation of citizens can be improved by using it.

The objectives of this chapter are to:

- Discuss the causes of low citizen E-Participation in the context of urban planning and design
- Present an adaptive framework to mitigate the causes of low citizen E-Participation

- Discuss the expected performance levels of the framework
- Discuss the benefits of the framework to citizens and local governments
- Suggest future areas for research caused by the frameworks development

There have been other suggestions to enhance particpation of citizens in governance but none have been more significant than those presented in this chapter. This is because until now challenges caused by the barriers causing low particpation had not been addressed during the design and development of instruments for E-Particpation.

BACKGROUND

In the year 2000 the United Nations (UN) declared at the general assembly their resolve to work as a collective body for more inclusive political processes, allowing authentic sharing of information by all citizens of their countries among other measures. Questions have continued to arise however whether policy and decision-makers in some countries are listening or are even willing to listen to demands, particularly those from the middle classes in developing countries. As a way of changing the status quo it is necessary to consider the development of governance tools that allow people's voices to be part of key decision-making processes, especially on decisions that can have a direct impact on their lives. The seriousness of empowering citizens to participate relies on this challenge being addressed. The challenge of e-participation becomes how best to deploy New Information Communication Tools (NICT) that empower citizens to participate meaningfully and effectively in governance, policy, service development and delivery processes.

E-Participation refers to citizen participation regarding e-government in general and expands a government's instruments for reaching out to and engaging with its people. It cannot however replace traditional forms of public participation such as face-to-face meetings, paper-based communications, telephone calls and physical bulletin boards (UNPAN, 2014).

E-governance refers to the public sector's use of ICT with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective (UNESCO, 2014).

Urban planning and design refers to an area which supports governments and cities with tested approaches, guidelines and tools to support urban growth and improved sustainability, efficiency and equity through planning and design at all levels (UN HABITAT, 2014).

FUPOL refers to the Future Policy Modelling in which new governance models are used to engage all stakeholders in the whole policy design lifecycle starting from the early automatic detection of citizens needs (FUPOL, 2014).

Participatory Enumeration is a data gathering process which is to a significant extent jointly designed and conducted by the people who are being surveyed (GLTN, 2010).

What do we mean by the term Geofencing? It refers to the application of Location Based Services (LBS). The context here is based on geographic limitation and takes into consideration the exact position of a mobile device using positioning technology to communicate (Ijeh, 2009, 2010 and 2011).

This chapter looks at ways in which Geofencing (the application of Location Based Services) increases the capacity of citizens to make and transform choices into desired outcomes by allowing them to engage and participate in public policy making and service delivery. In order to do this the scope of this chapter looks at the application of Geofencing in practice in the context of urban planning and citizen participation. In their study, Brimicombe and Li, (2006) described Geofencing as the "delivery of information and services tailored to the current or some projected location and context of the user". Figure 1 show the logical components of a Location Based Service (LBS) system which can be used to improve E-Governance. Location Based Services (LBS) are services based on the geographical location of a user (Ijeh, 2011). The location of a user is an essential ingredient used to provide services that adapt to a user's needs because a user's needs become dependent on their surroundings which are dependent on their location (Brimicombe and Li, 2009).

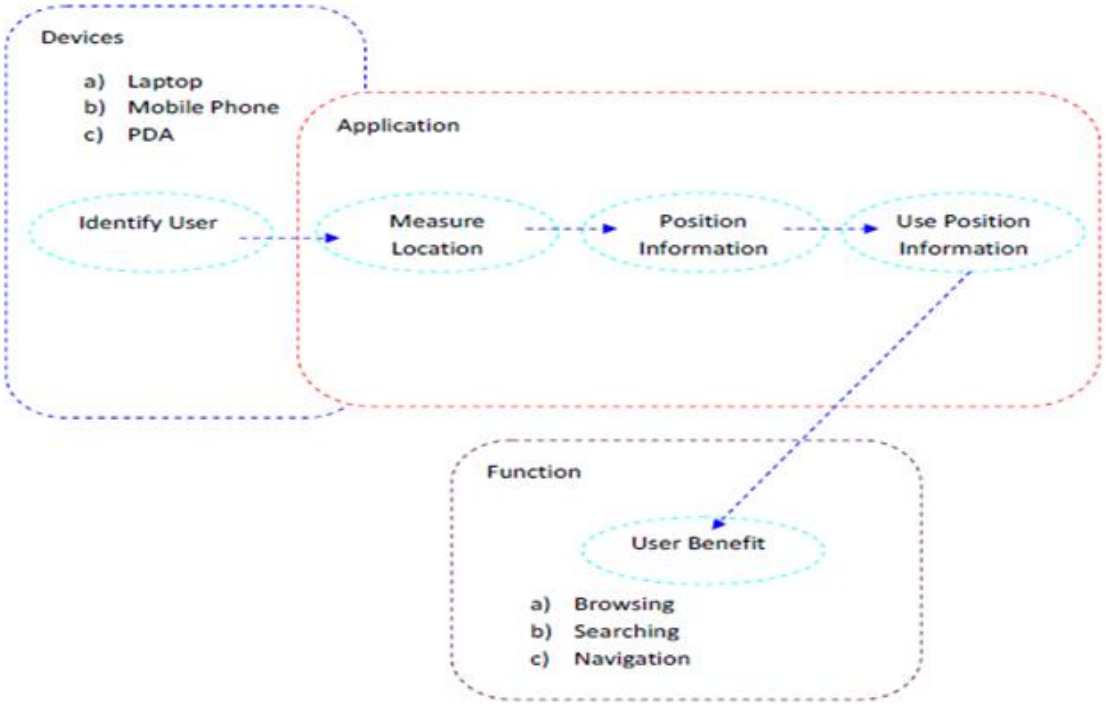


***Figure 1**: Tasking the LBS for the use of position (Ijeh, 2011)*

Location Based Services use a similar technology to Global Positioning Systems (GPS) to track and locate devices in order to determine the position of the user as shown in Figure 2. However due to the inability of the GPS to work effectively indoors several systems based on various technologies such as infrared (IR), ultrasound, video surveillance and radio signals have been used to try and fill the technological gap, (Brimicombe and Li, 2009). There are so many areas of location based services that have been highlighted in the course of previous research as either a challenge or benefit to users of LBS technology.

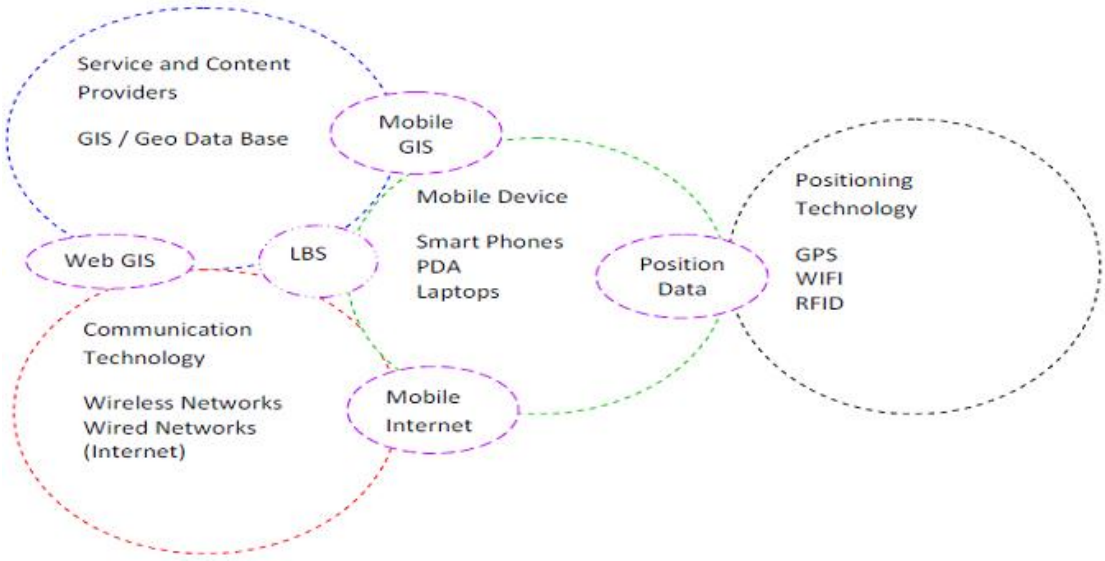


***Figure 2**: The Intersection of the technological hybrid of Geofencing Engineering (Ijeh, 2011)*

What are the causes of low E-Participation by citizens? There are various research reports on this which all seem to point to a situation where in spite of the massive investments and advances in e-government concepts, actual citizen participation is low suggesting lack of citizen engagement through e-consultation and e-forums. This chapter does not develop a new theory rather it reviews existing literature to highlight the gaps in knowledge and presents a conceptual framework to be used in overcoming the knowledge gaps. Therefore consideration will be given to the areas where the literature review is seen to point to situations where lack of citizen engagement through e-consultation and e-forums exists due to barriers.

Suh (2007) reported on four causes of low E-Participation. The first cause of low participation according to the report stated that if opinions proposed by citizens through government instruments were not properly reflected, citizens could feel alienated and lose interest in the effectiveness of the policy in question. This would result in the affected citizens having no further part in E-participation in the future. Such citizens could even cause other citizens to become disaffected by sharing their experience with them. The second cause of low participation according to the report stated that the challenges facing E-Governance were not solely NICT related in nature, rather factors such as culture, citizen awareness and traditional practices cause the uptake of E-Participation to remain low due to human factors. The third cause of low participation according to the report stated that the digital divide prevented E-Participation and that such inequalities become challenges in an information society using E-Government. The fourth cause of low participation according to the report was the lack of a promotion of citizen participation using different information routes. By not doing so the citizenship was not aware of the service and as such did not use it.

All of the challenges reported were defined as passive participation where no consensus on specific issues were collected or used to make policy. In contrast active participation is the formation of a consensus such as monitoring administrative activities. Both definitions are shown in Figure 3.

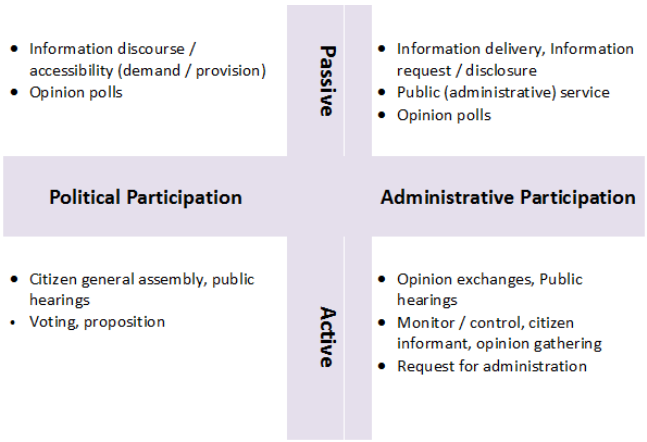


Figure 3: Citizen Participation Activity (Suh, 2007)

In their study (Haratu and Radu, 2010) found a different cause of low participation. They reported that even when E-Government took into account the opinions of the citizen's, participation was lower at the local government level than it was at the regional level. The study found the decision making process included opinions of citizens at both local and regional levels, which contrasts the findings of Suh (2007). A study by Kitsing (2010) found that valid identity could cause low participation. The cost of an ID card reader could hinder the participation of a citizen it was reported and this was more prevalent in the 2000's. This is gradually changing however as more and more ID card readers become available for E-Participation. More recently it was reported Stoiciu (2013) that the development of NICT tools is directly linked to the active involvement of citizens and the private sector in the delivery of public services. The study reported that all E-Governance instruments were directly influenced by the following factors: Transparency, barriers, legal framework, citizenship involvement, education, evaluation tools, infrastructure and investment in ICT. These barriers are defined to enable the strengthening of E-Participation as shown in Figure 4. The report by Stoiciu (2013) demonstrates the position of this chapter were the four barriers identified for causing low participation are mitigated using New Information Communication Technologies (NICT). In Figure 3, social, political, technological and human and emotional barriers are all identified as the root cause of low participation. These barriers can be mitigated using NICT.

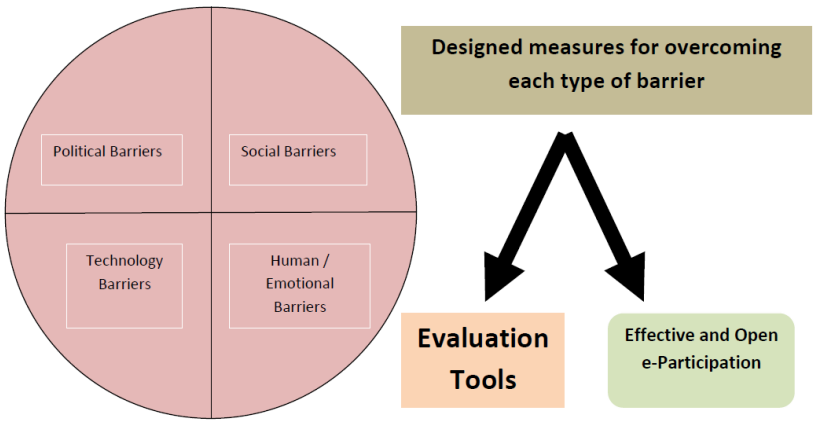


Figure 4: *There were identified 4 types of barriers in strengthening e-participation (Stoiciu, 2013)*

In designing our conceptual framework each barrier which affects our perspective will be looked at and used to map requirements that mitigate the challenge caused by the barrier. Mapping will be executed based on the Organisation for Economic Co-operation and Development (OECD, 2001) framework on E-Participation, that is widely known, and consists of constructs for "information", "consultation" and "active participation". These key dimensions consider to what level, or how far, citizens are engaged. The OECD report argued that democratic political participation must involve the means to be informed, the mechanisms to take part in the decision-making and the ability to contribute and influence the policy agenda specifically it usefully defines the following terms.

Information: a one-way relationship in which government produces and delivers information for use by citizens.

Consultation: a two-way relationship in which citizens provide feedback to government. It is based on the prior definition of information. Governments define the issues for consultation, set the questions and manage the process, while citizens are invited to contribute their views and opinions.

Active participation: a relationship based on partnership with government in which citizens actively engage in defining the process and content of policy-making. It acknowledges equal standing for citizens in setting the agenda, although the responsibility for the final decision rests with government.

Using these terms as a basis, and considering the objectives of E-Participation, Macintosh (2004) developed three levels of participation that can be used to characterize e-democracy initiatives. **E-enabling** is about supporting those who would not typically access the internet and take advantage of the large amount of information available.

E-engaging with citizens is concerned with consulting a wider audience to enable deeper contributions and support deliberative debate on policy issues. **E-empowering** citizens are concerned with supporting active participation and facilitating bottom-up ideas to influence the political agenda. Here there is recognition that there is a need to allow citizens to influence and participate in policy formulation as shown in Figure 5

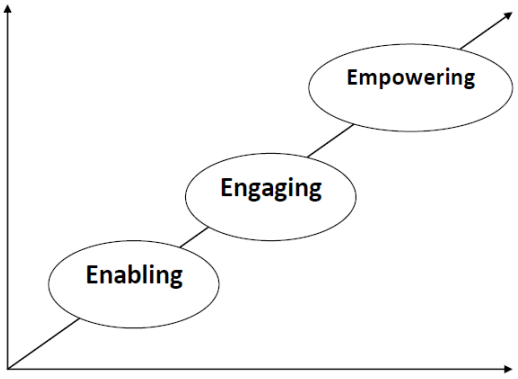


***Figure 5**: Levels of participation (Macintosh, 2004)*

This key dimension considers when to engage citizens. In order to establish a framework for discussing where NICT is most appropriate in the policy processes by looking at the 5 high-level stages involved on

the policy life-cycle. By explicitly defining these stages it will be possible for governments to better appreciate initiatives from different countries and from different levels of government. Each of the stages is described below and shown in Figure 6

Agenda setting: Establishing the need for a policy or a change in policy and defining what the problem to be addressed is.

Analysis: Defining the challenges and opportunities associated with an agenda item more clearly in order to produce a draft policy document.

Creating the policy: Ensuring a good workable policy document.

Implementing the policy: This can involve the development of legislation, regulation, guidance, and a delivery plan.

Monitoring the policy: This can involve evaluation and review of the policy in action, research evidence and views of users. Here there is the possibility to loop back to stage one.

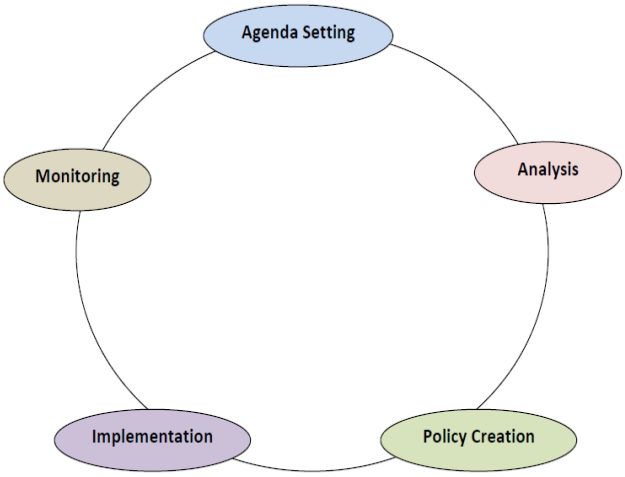


Figure 6: *Policy making life cycle (Macintosh, 2004)*

NICT allows policy makers to interact directly with the electorate or service users and those who's input the policy is seeking. Macintosh (2004) in her report argued that citizens have a greater impact on policy content when they are consulted early on in their policy making process rather than at the end. At each stage of the process stakeholders are required to have certain abilities or skills, such as communication skills to interpret the typical legalistic terminology of the documents in stage 3 (policy creation) before commenting appropriately.

At the various stages of the cycle stakeholders have a number of tasks to do during the E-participation which includes the following:

- developing precise participation e-content
- managing and controlling the participation process
- providing and agreeing background information/material
- helping to promote the initiative

- analyzing and evaluating of results
- incorporating results into policy
- disseminating results

MAIN FOCUS OF THE CHAPTER[lxix]

It was reported that many relatively large and permanent human settlement, slums are not merely insignificant neighbourhoods that house a few people. On the contrary, they are home to a large proportion of the urban population, and are growing as fast as cities themselves. The figures from global authorities are stark with one out of every three people living in a slum within a city (UN HABITAT, 2008). To combat the trend some countries are adopting strategic spatial planning, to integrate public-sector functions and include a territorial dimension and new forms of master planning that allow citizens to participate in order to enable social justice (UN HABITAT, 2009).

In comparison however much more conventional forms of master planning are still used in many developing countries. These approaches fail to accommodate the way the majority of inhabitants live in rapidly growing, poor and informal cities. They have often directly contributed to further social and spatial insignificance (GLTN, 2010). Many of the members of the UN National Assembly have signed up to enhancing participation from all their citizens and it is for this reason that the most widely used E-Participation model is based on the Organisation for Economic Co-operation and Development (OECD, 2001) concept comprising three main stages of participation, namely:

- e-Information – provision of information on the Internet,
- e-Consultation – organizing public consultations online, and
- e-Decision making – evolving citizens directly in decision processes

The models being compared were developed by three institutions: Organisation for Economic Co-operation and Development (OECD), Inform Consult Empower (ICE) and Internatioanl Association for Public Participation (IAPP) as shown in Table 1

Stage	OECD	ICE	IAPP	Method of Engagement
1	e-Information	e-Enabling	Information	ICT Channels
2	e-Consultation	e-Engaging	Consultation	Public Consultations (Website)
3	e-Decision-making	e-Empowering	Involving	e-Voting (Via Secure Web Portal)
4	-	-	Collaboration	Participatory decision making
5	-	-	Empowerment	Delegated decisions

***Table 1**: Comparison of e-Particpation Models (METEP, 2013)*

In assessing technology for E-Participation the key factor that determines the design, deployment and use of particular public engagement technologies for citizens' benefit is the availability of adequate capacities on the side of both governments and the citizenry (METEP, 2013). At a recent meeting the UN Department for Economics and Social Affairs (DESA's) Working Group on E-Participation lists three specific areas for concern in developing capacity for E-Participation, as shown in Table 2

- Open government/data and transparency

- Social media
- Mobility (mobile technologies/devises/platforms).

Specific Area	Challenge	Opportunity
Open Government	Inaccuracy of data, data protection, privacy concerns, differing social attitudes to open data that are linked to a diversity of cultural contexts	Informed decision-making, greater service innovation, and enhanced transparency
Social Media	Governments can be sidelined in online citizen-to-citizen dialogues and discussions.	Cost-effective ways for governments to engage with citizens, especially since many citizens are already on popular sites. Provides platforms that enable citizens to become content creators for public policies and services that governments can tap, providing a wealth of information. Strategy for utilizing citizen generated content for policy-making and service enhancement processes.
Mobility and Wireless Technology	Traditional e-government frameworks not covering the potential for convergence with existing channels and multi-channels.	New emerging trends that provide opportunities for overcoming the digital divide in terms of geography and uneven infrastructure. Target and customize of information for citizens and also potential to garner very specific data from individuals. Encourages mobile and wireless strategies, making sure there are commensurate data and privacy protection in place.

Table 2: *E-Participation Challenges and Opportunities (DESA, 2012)*

Solutions and Recommendations

The intention of this section is to develop and present a conceptual framework that can be used to mitigate the challenges which cause low E-Participation in E-Governance using a Geofencing solution and Enumeration strategy model. Towards achieving this, the literature in the background section which discussed the Geofencing solution and Enumeration strategy will be used. This section will also utilise the contributions from other sections because it has to take into consideration the contextual issues, parameters and specifications that could affect the overall live performance of the conceptual framework.

As reported by Stoiciu (2013) that the development of NICT tools is directly linked to the active involvement of citizens and the private sector in the delivery of public services. The conceptual framework will use the barriers to develop robust instruments which take into account the following factors: Transparency, barriers, legal framework, citizenship involvement, education, evaluation tools, infrastructure and investment in ICT (Ijeh et al, 2014). These barriers are shown in Table 3. The report by Stoiciu (2013) asserts that the four barriers identified for causing low participation can be mitigated using New Information Communication Technologies (NICT). Table 3, shows social, political, technological and human and emotional as root causes of low participation, these barriers can be mitigated using NICT.

Engagement Technology	Political Barrier	Social Barrier	Technical Barrier	Human Barrier
Geofencing	✓	✓	✓	✓
Social Media	✓			
Website	✓			
Database	✓			
Blogs	✓			

***Table 3**: Addressing the barriers to E-Particpation using Geofencing*

In the literature Suh (2007) reported on causes of low E-Participation. The first cause was if opinions proposed by citizens through government instruments were not properly reflected, citizens could feel alienated and lose interest in the effectiveness of the policy in question. The second cause was culture, citizen awareness and traditional practices. The third cause was the digital divide which prevented E-Participation. The fourth cause was lack of a promotion of citizen participation using different information routes. All the causes were not being properly addressed because the NICT being used could not cater for the requirement. Geofencing is configured to take care of all the barriers shown in Table 3 to enhance the wide spread use of E-Participation and E-Governance. In their study Haratu and Radu, (2010) reported that even when E-Government took into account the opinions of the citizen's; participation was lower at the local government level than it was at the regional level. This could be a reflection of the barriers identified in this studied being mitigated. Citizens in the local government areas may face technical, human and emotional and social barriers which are addressed in Table 3. Kitsing (2010) found that valid identity could cause low participation. Geofencing addresses this concern as an identity card is not required in the conceptual framework. The conceptual framework which affects our perspective used the challenges caused by the barriers to develop a solution. Mapping of the solution has been executed based on the Organisation for Economic Co-operation and Development (OECD, 2001) framework on E-Participation, which is widely known, and consists of constructs for "information", "consultation" and "active participation". Macintosh (2004) in her report argued that stakeholders are required to have certain abilities or skills, such as communication skills to interpret the typical legalistic terminology of the documents in stage 3 (policy creation) before commenting appropriately. Geofencing has addressed this issue in Table 3. Based on the barriers and the ability of Geofencing to mitigate the challenges causing low participation, Geofencing is now part of the NICT used for E-Governance in Figure 7

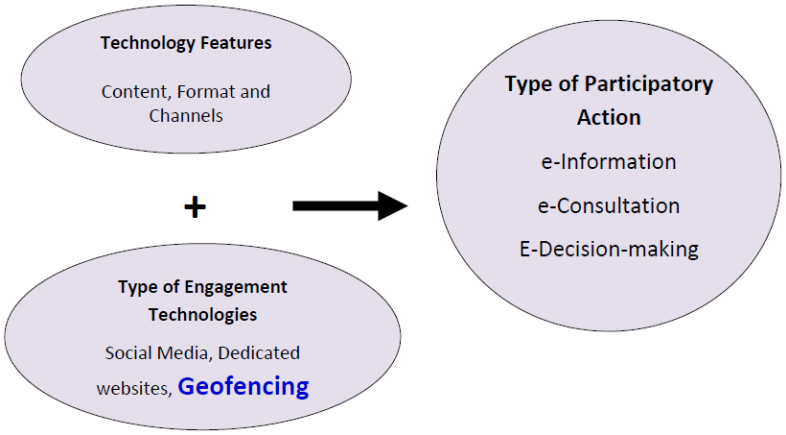


***Figure 7:** Role of digital technologies for E-Participation*

Barrier	Challenge Caused by Barrier	Geofencing Solution to Barrier
Political	Legislation	
	Transparency	✓
	Active Citizenship	✓
	Top down engagement of Citizens	✓
	Measuring and Evaluating Participation	✓
	Local, National and International Cooperation	
Social	Poverty	
	Bottom up engagement of citizens	✓
	Public responsiveness	✓
	Receiving Information	✓
	Local, National and International Cooperation	
	Digital divide and inclusiveness	✓
Technical	Infrastructure	✓
	Implementation of engagement technologies	✓
	Open Government Data	✓
	Affordable ITC tools and technical assistance	✓
	Access to quality ICT content	✓
Human	Lack of education	✓
	Lack of digital literacy	✓
	Lack of trust in government accountability	✓
	Lack of communication between stakeholders	✓
	Lack of trust caused by past political problems	✓

***Table 4**: Requirements Mapping for Geofencing Solution*

Description of the Geofencing solution

Having overcome the major barrier for urban planning through E-Participation in developing countries caused by nonexistent telecommunications infrastructure, can the software platforms be combined with Geofencing? The answer is yes!

The Geofencing solution requires an SMS-based solution like that developed by Frontline SMS, EpiSurveyor and RapidSMS, which can be used without modification to mobile phones, so that it is accessible to a large pool of potential users, regardless of the mobile devices they are using.

Following the requirements analysis and design of the Geofencing solution in Table 4 the high level view of the contextual framework is shown in Figure 8. The key area in the conceptual framework is the solution development. The logical components form the core components of the security solution. The development is not a build but rather an application of the logical components in a different way to what exists. The aim of the solution is to demonstrate that in using a user's location as a holistic control mechanism it is possible to enhance E-Participation.

Holistic control mechanisms for Geofencing as a tool for urban planning – Direct participation

- Language Geofence – Can be exemplified by a traveller going through a French speaking area will receive an SMS Text alert in French but once he enters English speaking areas he receives the same alert in English. The Geofencing trigger inherent in the service could be used for urban

planning in developing countries were a variety of languages usually exist within closely connected areas such as villages, towns and states. So for example in West Africa were English and French speaking countries are located side by side it would be possible to Geofence E-Participation based on the language used in an area. Its implementation will enable concerned citizens to participate in urban planning processes affecting their community without the use of a translator.

- Mobile Phone Geofence – Can be exemplified by a local government made up of several communities about embark on urban planning consultation sending an SMS Text alert to the affected community. In this case the Geofencing trigger inherent in the service is used to alert a particular community to participate in an ongoing discussion so as to reach consensus as to what they want for their community. So for example in the Sultanate of Oman in the Middle East were Governorates are made up of several towns, the Wali's office (Governors office) overseeing a particular Governorate can Geofence E-Participation based on the Mobile Phones in a particular town. Its implementation will enable the town's citizens to participate in urban planning processes affecting their town.
- Emergency Alert Geofence – Can be exemplified by the current Ebola Virus Disease outbreak which is causing havoc in four countries within the West African region. The community which was first affected by the virus could have been quarantined by sending an SMS Text alert to its citizens. In this case the Geofencing trigger inherent in the service is used to alert the community to a virus disease outbreak in order for them to follow health and safety instructions and discuss the immediate needs in order for them to do so. So for example in Sierra Leone which is currently the worst affected of the four countries, citizens in the affected and surrounding communities would have been informed of what to do and not to do if they have come in contact with a victim and also how to behave within the quarantined zone e.g. not to eat bush meat which is one of reasons the virus has spread in mega proportions. An open line of consultation between the citizens and health officials can collect and share information on a need to know basis. Its implementation will enable the town's citizens to stay safe and contain the spread of the Ebola virus within the communities.

Within the limits of this chapter, the evaluation criteria is based on the ability of the solution to successfully mitigate the identified barriers so as to remove the challenges faced by citizens in E-Participating. The solutions architecture for the framework is made up of the Location Based Service technology as shown in Figure 8 it does however adopt pre-set Enumerations for consistency. A request for access is sent automatically once the citizens mobile device enters a location to the user services and profiles server. The submitted request is then sent as a signal to the database server to authenticate the user's profile. If the authentication is successful, the positioning technology server is sent a signal which is passed to the citizens mobile device being used to participate to monitor the mobile devices current position at set time intervals. How does Geofencing mitgate the barriers?It does so by configuring them as algorithms which are then removed from challenging the citizen

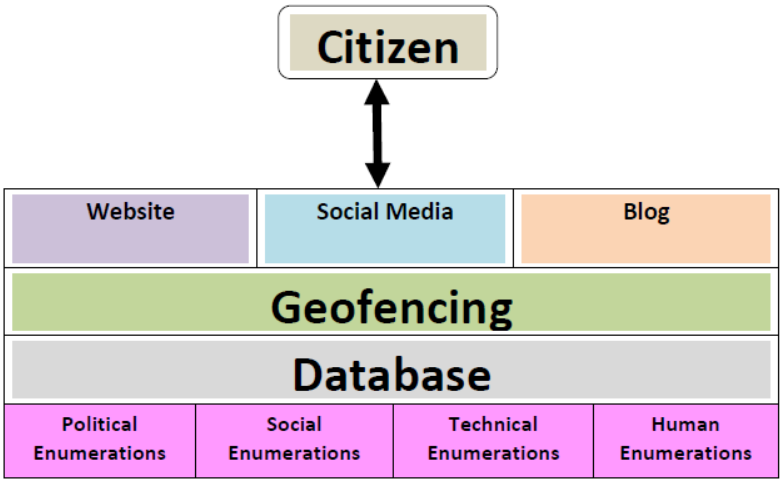


Figure 8: *High Level View of the Conceptual Framework*

Benefits of the Geofencing Solution

In order to encourage citizen participation in urban planning appropriate legislation that supports all its processes including the News Information Communication Technologies (NICT) tools used to E-Participate in urban planning and design need to be in place. For trust and transparency, workshops explaining how the urban planning processes work including how E-Participation tools (hardware and software) will enable each citizen to participate in a reliable and transparent urban planning process that decides the future of the community based on consensus. Geofencing as a tool mitigates the barriers and deficits in using NICT for urban planning in developing countries were the necessary infrastructures for using NICT do not exist. Using the Future Policy Modelling (FUPOL, Anon) lifecycle as guide for developing Geofencing as a tool for urban planning has linkable benefits to citizens, politicians, civil servants, enterprises and local governments which include outcomes that support governments in

- Gaining a better understanding of the citizen´s needs and businesses activities
- Getting direct feedback from all political stakeholders through multi-channel social network analysis based on the communication between politicians and citizens
- Predicting the impacts of policy measures leading to a more efficient implementation of government policies
- Taking better decisions based on forecasts regarding the potential impact of political decisions
- Achieving a high-level engagement of citizens and a wider use of NICT tools resulting in a higher innovation potential related to the interaction of citizens with their respective governments.

Some of the benefits of the conceptual framework to citizens and local governments include that it removes the barriers which cause low E-Particpation. It does so by enagaging its citizens, governments can explain legislation using the Geofencing solution which enables citizens to hear in different languages the legislation being enacted or dicussed. This promotes transparency and demonstrates governments commitment to involve all of its citizens which promotes active citizenship. This is because citizens feel obliged to partake when all the necessary support for them to do so is provided. The Geofencing solution promotes top down engagement by allowing government talk directly to its citizens, this brings all stakeholders closer because no barriers exist which keeps thema apart. A special feature of the Geofencing solution is that it has an analytics function and remits real-time data on surveys and decision to all

particpants, this allows the government to measure and evaluate its efforts and the impact of the survey or discussion being held. Whilst the Geofencing solution allows governements to interact with each other as an interface cooperation between countries can only become a reality if the governments of the day want to particpate in the same discussion. For this reason the Enumeration indicator has been left unticked in Table 4

Another benefit of the Geofencing solution is that it takes into account the individuality of citizens which includes providing and given access to different modes of interface e.g. websites, portals, blogs and forums. This enables citizens to become better informed about the discussion or issues affecting their communities. Whilst the level of poverty itself cannot be changed by the Geofencing solution it can be used as a resource that enables a citizen to provide for him or herself. The Geofencing solution also provides a means for allowing bottom up engagement between citizens and their government representatives so they can engage in the decision making process. This allows the public to respond to government surveys because they feel they have a voice and can use the Geofencing solution to communicate that voice. This also allows the citizen to obtain information from appropriate sources like designated government portals. Announcements can also be made on the via the Geofencing solution as targeted participants are sent information relating to their location. Cooperation between governments using the Geofencing solution is dependent on the will of each government to participate. Most importantly the Geofencing solution removes the digital divide between citizens. It is designed in a way that the technical features remain behind the interface so that each citizen can use the keypad regardless of their educational background, exposure or language.

The Geofencing solution is appropriately designed to be future proof and allows internet access at a speed which is internationally acceptable. As an engagement technology Geofencing Solution is produce at minimum cost so that citizens the world over can enjoy the e-participation barrier breaking technology. Open Government Data, social media, mobile and wireless communications, including websites and portals are all accessible with Geofencing. Service level agreements will be put in place to ensure that citizens are not denied access to quality NICT content

Design of the Geofencing solution in the Urban Context

Urban Policy Design through Geofenced Electronic Participation tools such as SMS texts allow citizens of an area to contribute through consultation in openly transparent processes to their communities. Concerned citizens are activated using situations affecting them directly there by enabling the consultation to be focused and meaningful. Archival literature reports that citizen activism such as Geofenced Electronic Participation will enable municipalities and governorates in developing countries to communicate their urban planning processes, which will lead to greater participation with their citizens as shown in Figure 9

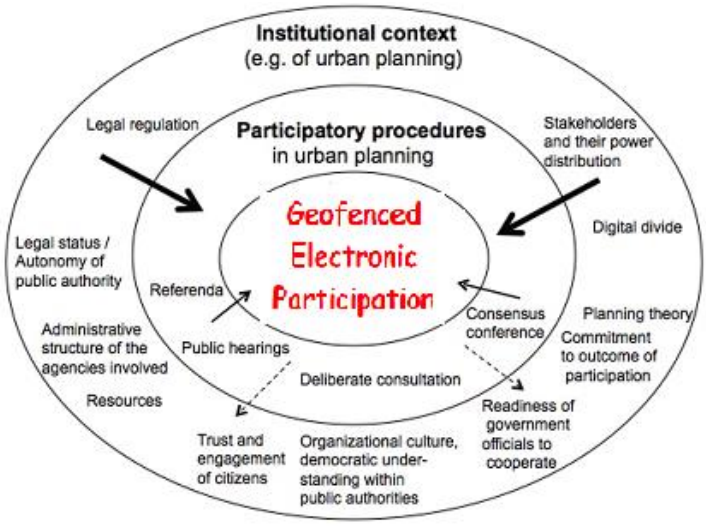


Figure 9: *Applying Geofenced Electronic Participation in Urban Planning and Design*

Features applied to Urban Context in developing countries

Component 1: SMS cell broadcasting – Sends message - Point to Area (Government)

Features

- Authorities can broadcast messages to anyone in a given geographical area without needing any pre-registered numbers or infringing on privacy.
- Messages can be tailored for different geographical areas and use dedicated communication channels thus eliminating congestion.
- There is also no way for an outsider to generate a cell broadcast message, so false emergency alerts are considered unlikely
- While mobile phones have to be switched on to receive the alerts, cell broadcasting allows for repeat messages to be broadcast periodically.
- Simultaneous multi-language broadcasting is also possible.
- The messages flash automatically on the screen of mobile phone sets, instead of going to message boxes. This way, a user does not even need to push a button

Component 2: SMS Software Platform - Allows Two-Way Communication (Government & Citizen)

Features

- It allows users to send text messages to groups of people and to receive messages on their mobile phones and computers
- The software platform does not require an internet connection
- It can work with any plan on all GSM phones, modems, and networks.
- It has been designed to operate from a laptop so that it can be used during power outages or while travelling.
- The software becomes a communications hub where the numbers of incoming or outgoing SMS messages are saved.
- It is scalable and can be used to reach large groups.
- It can be used worldwide by switching the SIM card.
- It can be used for human rights monitoring, emergency alerts, field data collection, healthcare information requests, and public surveys, among many others.
- In short, the software can be used for almost anything that requires two-way communication between two parties, or between a central party and a crowd.

Component 3: Location Based Services – Pinpoint targeting of devices in an area (Government)

Features

- A simple service that restricts correspondence via SMS (Short Message Service) to devices in a selected area determined by a ubiquitous interface for telecommunication.
- It meets the requirement that the service should be accessible to all without handset modifications, as SMS is available on all wireless handsets and requires no user provisioning.
- Location information would be provided in the form of a simple text message, returned to the user in response to a request, also generated by SMS. This eliminates the need to display maps to pinpoint the location of targets, and does not require the use of GPS as a means of providing location information.

One feature of Geofencing solution is its ability to provide a service that suits every citizen regardless of their background. So for instance a citizen's level of education or digital literacy would not be an issue because Geofencing solution provides a service that enables citizens with both Enumerations. This key ability is what replenishes trust and faith in the political process and encourages citizens to participate in the decision making affecting their communities. The lack of trust usually causes low participation, however this trend can be changed if the governments are willing to invest in NICT that enable all its citizens to participate

Improvement against Traditional Solutions

- Overcomes the barrier faced by most citizens in developing countries who do not use smart phones by not using Global Positioning Service (GPS)
- Overcomes the barrier of complex mapping data in the user interface by sending a text message of the location of the respondent on request
- Overcomes the issue of network infrastructure by not using internet connection
- Overcomes the issue of false emergency alerts by sending messages from an authoritative source using SMS cell broadcasting
- Overcomes the barrier caused by language by simultaneously broadcasting in multi-languages.
- Overcomes the barrier of working when there is a power outage by not requiring direct current to work
- Overcomes the barrier of having to change SIM cards or mobile phones not configured for a particular network by not being designed for any particular network

Future research or operational directions

In the future it would be appropriate for all countries to engage Geofencing so that barriers become a thing of the past. This would however mean that standards would have to be put in place so that communication across boundaries is done in a structured and standardised way. It would also be nice for a dedicated radio frequency to be allocated to Geofencing solution so that downtimes can be reduced . Geofencing creates opportunities for E-Participation by ensuring that all citizens partake in the decision making process and democratic systems. It also ensures that the effectiveness of government is enhanced and the citizens are empowered to partake and believe in a transparent process. Funding is being sort to

provide Proof of Concept for the Geofencing Solution which enhances the capacity of both government and citizens in E-Participation and E-Governance.

CONCLUSION

This chapter has presented a conceptual framework that enables citizen participation to develop through the application of Location Based Services (Geofencing). The chapter's aim of strengthening the capacity of developing countries in applying New Information and Communications Technologies for citizen engagement has been demonstrated. The conceptual framework offered a perspective of Geofencing in Urban Planning and design that improves access to information and public services as well promoting E-Participation in policy making for the empowerment of the individual citizen and for the benefit of society as a whole. This chapter considered existing technologies and models used in the design and development of E-Governance and E-Participation and defined the issues with the use of these existing technologies and models in order to present a conceptual framework to mitigate the barriers in using existing technologies and models which cause low E-Participation.

REFERENCES

Ali, M. (2005). *Advanced Location Based Service*. IEEE/IEE Applied Electronics 2005 International. Conference., The Department of Applied Electronics and Telecommunications, University of West Bohemia, Pilsen, Czech Republic, 7 - 8 Sept., 2005, pp.13-16

Brimicombe, A.J. and Li, Y. (2006), *Mobile Space-Time Envelopes for Location-Based Services*; Transactions in GIS, 10: (1), pp5–23.

Brimicombe, A.J., and Li, C. (2009). *Location-based services and Geo-Information Engineering*. Chichester, UK: Wiley-Blackwell, pp1-392.

FUPOL (Anon) An integrated approach to E-Governance, E-Participation and policy modelling http://www.fupol.eu/pdf/public_deliverables/fupol_brochure_modules.pdf

GLTN (2010). *Global Land Tool Network Brief 1: Tackling tenure security in slums through participatory Enumerations,* pp1-2. Retrieved May 3, 2014 from http://www.gltn.net/jdownloads/GLTN%20Documents/2992_alt.pdf

GLTN (2010). *Global Land Tool Network Brief 2: Improving data collection for urban planning through participatory Enumerations,* pp1-2. Retrieved May 3, 2014 from http://www.gltn.net/jdownloads/GLTN%20Documents/2993_alt.pdf

Haruta, C., and Radu, B. (2010). *Citizen Participation in the Decision Making Process at Local and County Levels in the Romanian Public Institutions*. Transylvanian Review of Administrative Sciences 31: pp76-92.

Ijeh A.C., Brimicombe A.J., Preston D.S., Imafidon C.O. (2009a). *Geofencing in a security strategy model*. In: Jahankhani H, Hassami A, Hsu F (eds) Global security, safety and sustainability, vol 45, 1. Springer, New York, pp 104–111

Ijeh A.C. (2010). *Wireless Security Model*. Lodged with the intellectual property office UK: Date Lodged: 27 Oct

2010. Applicant: Ijeh AC (Journal 6342) Patent GB1018091.7, Journal No. 6342, 1–13

Ijeh A.C. (2011). ***Geofencing as a Security Strategy Model.*** Professional Doctorate Thesis, University of East London

Ijeh, A.C., Brown, J., Haleeb, A.L., (2014). *Education and Sustainable Development in Oman: The Contribution from Higher Education* IN W. Leal Filho (ed.), Transformative Approaches to Sustainable Development at Universities, World Sustainability Series, Springer International Publishing Switzerland, pp1-18.

Kitsing, M. (2010). *An Evaluation of E-Government in Estonia*. Paper presented at the conference "Internet, Politics and Policy 2010: An Impact Assessment conference", Oxford University

Macintosh, (2004). *Characterizing E-Participation in Policy-Making*. In Proceedings of the 37th Hawaii International Conference on System Sciences, pp1-10. IEEE Press

METEP (2013). *Measuring and Evaluating E-Participation: Assessment of Readiness at the Country Level*, pp1-24.

OECD, (2001). *Citizens as Partners: Information, consultation and public participation in policy making: OECD*.

Stoiciu, A. (2013). *Strengthening e-Participation: Overcoming Obstacles for Better Consultation Mechanisms*. Case studies, IN E-Participation: Empowering People through ICTs Geneva, Switzerland, pp1-17. Retrieved May 3, 2014 from http://workspace.unpan.org/sites/Internet/Documents/UNPAN90477.pdf

Suh, S.Y. (2007). *Promoting Citizen Participation e-Government: From the Korean Experience in e-Participation*. Retrieved May 05, 2014, from http://unpan1.un.org/intradoc/groups/public/documents/un/unpan020076.pdf
UNESCO (2014). *E-Governance Capacity Building*. Retrieved May 13, 2014, from http://portal.unesco.org/ci/en/ev.php-URL_ID=3038&URL_DO=DO_TOPIC&URL_SECTION=201.html

United Nations, Department of Economic and Social Affairs, Division for Public Administration and Development Management (2012). *United Nations e-Government Survey 2012. E-Government for the People.* February 2012. Department of Economic and Social Affairs. New York. Working Paper No. ST/ESA/PAS/SER.E/150

United Nations, Department of Economic and Social Affairs, Division for Public Administration and Development Management (2014). *United Nations e-Government Survey 2014. E-Government for the future we want.* May 2014. Department of Economic and Social Affairs. New York. Working Paper No. ST/ESA/PAD/SER.E/188

UN HABITAT (2008). *State of the world's cities report 2008/9: Harmonious cities. London*. Retrieved May 06, 2014, from http://tinyurl.com/yhhh68v

UN HABITAT (2009). *Global Report on Human Settlements 2009: Planning Sustainable Cities: Policy Directions*.

Fuzzy Cognitive Maps for Urban Policy Design in Developing Countries

Haris Neophytou

Interfusion Services Ltd, Lemesos, Cyprus

Constantinos Stylianou

Department of Computer Science, University of Cyprus, Lefkosia, Cyprus

Abstract

This paper presents an initial investigation of the potential of fuzzy cognitive maps (FCMs) as a modelling and simulation instrument for urban policy design in developing countries. Several recent approaches with FCM models have been proposed aiming to help decision-makers in a number of policy domains by gathering stakeholder opinions, as well as by simulating the impact of policy scenarios. Preliminary results, conducted partially in the context of the FUPOL project in selected urban policy domains, provide positive indications that FCMs have the potential to be a suitable method for preparing for urban evolution, and that developing countries are ideal candidates for both embracing and benefiting from such a policy simulation approach. However, there is still a need to expose policy decision-makers in developing countries to its practicality and simplicity as a policy learning and simulation tool.

Keywords: fuzzy cognitive maps, intelligent tools, policy modelling, policy simulation.

INTRODUCTION

Urban policy design is currently one of the most challenging problems facing policy decision-makers in developing countries due to the fact that rapid urbanization has increased the need for better governance of towns and cities. There are a number of different policy areas that need to be addressed, including planning, housing and slum upgrading, land, energy and climate change, reconstruction and resilience, and water and sanitation, among others, all of which add to the complexities of modern-day policy decision-making.

It is critical for decision-makers to be able to identify how different stakeholders view a particular problem in order to adequately collect opinions and beliefs of the people and organizations involved or affected by a policy, as well as the knowledge and expertise of domain specialists. Only once these views are collected can decision-makers be able to assess the impact of a policy on the stakeholders. For

example, in policy-making in the housing domain, it is important for local authorities to gather the opinions of different types of stakeholders, such as home owners, representatives of the homeless, builders/construction workers, etc., whose opinions may or may not be in conflict. Following this, decision-makers must take steps in evaluating how a new policy or a change in an existing policy will affect these different stakeholders and decide whether to adopt or reject the policy.

For governments and local authorities, particularly in developing countries, it is necessary for them to be equipped with the right tools in order to tackle the demands of the policy-making process and be able to improve the quality of policies in terms of effectivity and acceptability. Support from ICT has provided some progress in improving governance, especially in the form of intelligent techniques. FCMs are one such technique, which rely on the use of expert knowledge to help model the current state of a problem and simulate the interaction of the factors within the problem to predict future states. Specifically for urban policy-making, FCMs can be used to represent various policy domains and predict the impact of different policies and the reaction of citizens in terms of both effectiveness and acceptability. Due to their ease of use and simplicity, they are considered a powerful and reliable decision support tool capable of performing what-if scenario analysis and also suitable to consolidate the opinions of stakeholders and citizens.

BACKGROUND

Axelrod (1976) introduced cognitive maps as a way to help decision-makers represent complex socio-political problems by capturing and organizing the knowledge of experts in the form of a 'mental model' depicted visually by an acyclic directed graph composed of nodes and edges. The nodes symbolize the concepts constituting a problem (possible variables, states, events or actions) as perceived by an expert. Concepts can have either a positive or negative presence in the problem, and are expressed as quantities (e.g., city population) or as qualities (e.g., satisfaction of citizens). The edges denote the cause-effect relationships between these concepts, again as recognized by an expert. A causal relationship can have either an excitatory (positive) causality, meaning that an increase in strength of the cause concept leads to an increase in the strength of the effect concept, or an inhibitory (negative) causality, meaning that an increase in strength of the cause concept leads to a decrease in the strength of the effect concept. Figure 1 shows an example of a cognitive map representing an expert's mental model of the factors present in the domain of public health and their relationships (Maruyama, 1963). As can be seen in the diagram, expert knowledge and beliefs have been systemized into a cognitive map consisting of quantitative and qualitative concepts that influence and are influenced by other concepts.

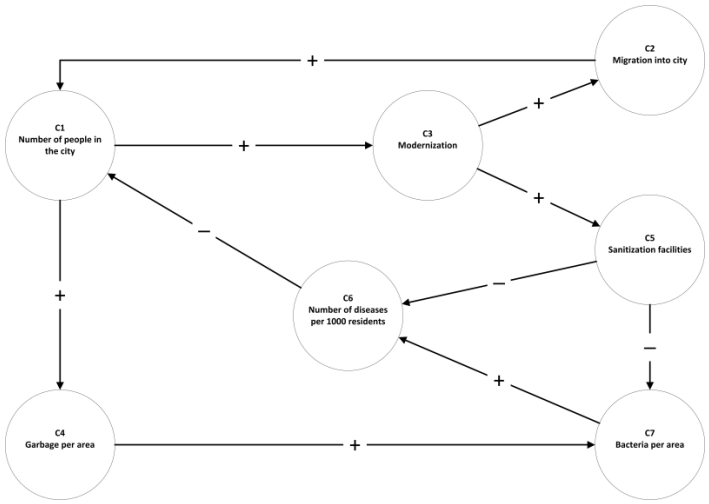


Figure 1. Public health cognitive map (Maruyama, 1963).

As an extension of cognitive maps, Kosko (1986) proposed fuzzy cognitive maps (FCMs) by combining fuzzy logic theory (Zadeh, 1965) with artificial neural networks (McCulloch and Pitts, 1943) as a way to allow decision-makers to simulate the dynamic behaviour of concepts as they interact in a cognitive map. Essentially, the mental model is initialized with values to reflect the current state of the problem in fuzzy terms. Specifically, concepts in a fuzzy cognitive map are assigned an activation level that determines the degree of presence; concepts can now have either a strong or weak presence in a problem, whether acting as either a positive or negative factor. Similarly, causal relationships are assigned a weight value that determines the strength of the connections; causal relationships can now denote either a strong or weak influence between concepts, whether the connection is excitatory or inhibitory. Figure 2 depicts a fuzzy cognitive map using the concepts and causal relationships comprising the mental model of the public health domain. With such structured representation of knowledge, decision-makers can reconstruct the reasoning behind the behaviour of a specific variable in a problem (e.g., the concept of 'modernization') or form a workable explanation of the cause of an event or action in a problem (e.g., the concept of 'migration into city') or make decisions in the context of a problem (e.g., the concept of 'sanitization facilities').

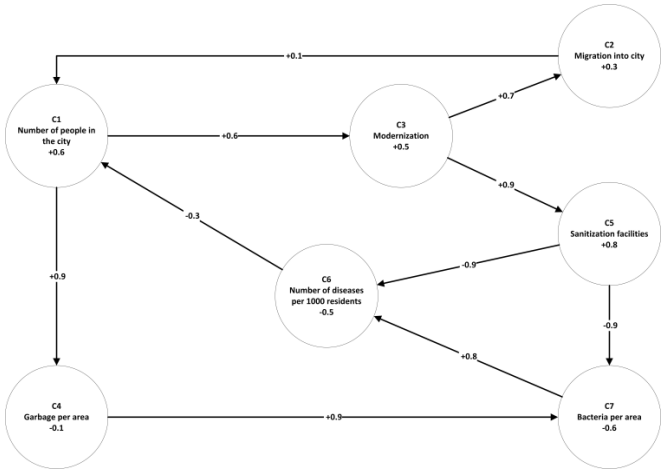


Figure 2. Public health fuzzy cognitive map.

Construction of a fuzzy cognitive map relies on expert knowledge. Decision-makers, therefore, can consult a number of domain experts in order to identify the concepts present in a problem domain and the connections between these concepts, and then have the experts initialize the model based on what they believe best reflects the current state of the problem. Additionally, decision-makers can use existing scientific literature to extract the concepts and causal relationships. Alternatively, involved stakeholders can be called upon to construct and initialize a fuzzy cognitive map based on their own point of views. Decision-makers can then consolidate individual maps into one map for each group of stakeholders to get a better understanding of how different groups of people store and process knowledge, as well as to gain insight of how various actions and decisions are taken by groups of people with differing opinions.

Simulation of a FCM aims to help decision-makers assess the future state of a problem by conducting scenario analyses on the current state of a problem. The process involves allowing the concepts in the model to interact. In other words, the strengths (activation levels) of the concepts are iteratively changed based on the influence (weight values) each one receives from all other concepts it shares a connection with. As iterations execute, the activation levels of concepts are updated leading to a final equilibrium state, where each concept's activation level reaches a fixed point. Less desirably, the activation levels sometimes may not converge to a fixed point, but instead oscillate either between a fixed-length range of values (exhibiting limit-cycle behaviour) or between a random-length (non-deterministic) range of values (exhibiting chaotic behaviour). For policy-makers, specifically, they are able to evaluate the impact of a policy by changing the current state of a problem to reflect the changes brought on by the adoption of the policy. Then, by allowing the map to interact, the final state of the concepts will represent the effectiveness of the policy. Furthermore, if each group of stakeholders has a corresponding FCM, then simulation will be able to assess the level of acceptability of a policy by each group of stakeholder individually, thus helping policy-makers come to a more informed decision.

As a result of the increased use of FCMs, a number of variations have been proposed over the years. Examples include certainty neuron FCMs (Tsadiras and Margaritis, 1997), rule-based FCMs (Carvalho and Tomé, 2004), genetically evolved certainty neuron FCMs (Andreou, Mateou and Zombanakis, 2005), multilayered FCMs (Mateou, Andreou and Stylianou, 2006) and belief degree distributed FCMs (Mkrtchyan and Ruan, 2012).

APPLICATIONS OF FUZZY COGNITIVE MAPS

FCMs have been adopted in many application domains, particularly for complex social and political systems requiring an accurate representation of knowledge in order to assess the impact of changes to the current state of a problem and to forecast future states. In this section we review several approaches, which are believed to have the potential to be applied in various urban policy domains and, consequently, to help decision-makers in developing countries formulate and assess the impact of policies. In particular the focus is on the adoption of FCMs in water/sanitation and energy urban policy domains.

Water and Sanitation

Many developing cities are struggling to cope with issues regarding water distribution and sanitation systems/facilities, especially as more and more people compete for resources due to rapid urbanization. According to UN-Habitat figures around 11% of the world's population currently still lacks access to

water from a safe and clean source. For Sub-Saharan Africa alone, this figure increases to over 40% of its population. Furthermore, adequate sanitation systems are severely lacking, with roughly 2.6 billion people having no access to toilets and other hygiene facilities. Consequently, high levels of water-borne diseases, pollution and contamination, which are the result of these poor sanitation, inevitably cause an increase in health risks. UN-Habitat is currently running several programmes that prioritize safer water and sanitation systems focusing particularly on the urban poor. These programmes aim to support governments and local authorities through policy-making, as well as technically and financially.

FCMs can help governments and local authorities deal with these issues by modelling and simulating the impact of water and sanitation policies on urban development, in addition to be used as a means to gather opinions, beliefs and attitudes of citizens and stakeholders. These policies may concern regions suffering from physical water scarcity, such as Northern and Southern Africa, Northern China and Mexico, or places with economic water scarcity, like countries in Central and South America, Southeast Asia and Central Africa (UNESCO/WWAP, 2012).

Over the last decade, there has been a number of research works were FCMs have been employed in this field. For example, FCMs have been used in drought management to analyze and solve potential conflicts between the different perceptions of stakeholders (Giordano et al. 2005; Giordano and Vurro, 2010). In this case, the goal was to use FCMs in order to help regional authorities and local municipalities in the Umbria Region of Central Italy to assess the level of acceptability of a drought management action among the parties, agencies and industries immediately affected, such as farmers/agriculture workers, tourism, as well as citizens. The first step involved eliciting the drought perceptions of these groups of stakeholders and structuring them into mental models consisting of what they believe are the important elements and interactions affecting drought in their environment. Figure 3 displays the cognitive map resulting from the elicitation of the perceptions of farmers.

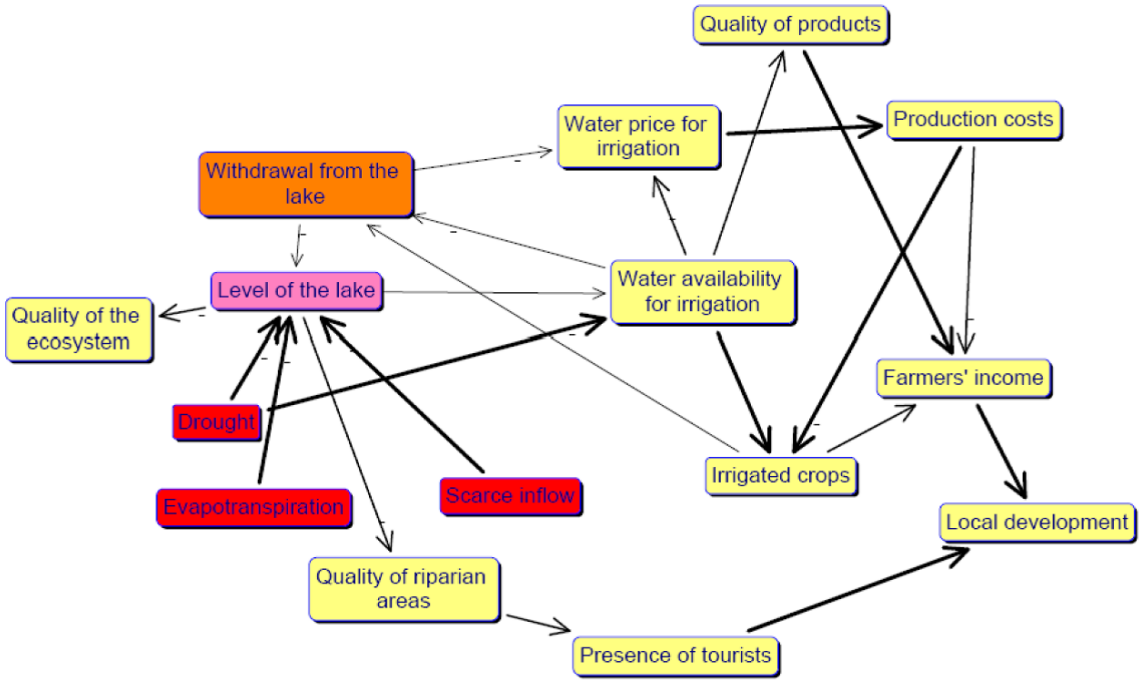


Figure 3. Cognitive map of Farmers' Association (Giordano and Vurro, 2012).

The second step involved simulating scenarios to determine to which degree particular policy management actions (wastewater reuse, provision of technical support to farmers, changes to agricultural practices, emergency planning) would be accepted. In general, for developing cities and regions where drought mitigation strategies are not in place, FCMs can provide valuable assistance to decision-makers for formulating and evaluating the impact of policies and avoid consequences such as famine and dehydration, migration (human and wildlife) and social unrest. Similarly, Moratiadou and Moran (2007) employed FCMs to model public participation in the EU Water Framework Directive for assessing strategies regarding sustainable management of water resources in Europe. Specifically, the aim was to gather public and stakeholder perceptions on the current state of water resource management in the Pinios River Basin in Central Greece, and then assess the impacts of certain policies in terms of acceptability by the public. Once all stakeholder perceptions were collected, they were consolidated into a unified social cognitive map (Figure 4). Using the cognitive map, several policies altering the current state were simulated in order to determine the social, economic and environmental impacts of the policies on the stakeholders. The policies concerned: (1) the increase in water supply through long-run water storage investments and expanding irrigation networks; (2) the application of full cost recovery and pollutant pays principle; and (3) the combination of different measures desirable to stakeholders.

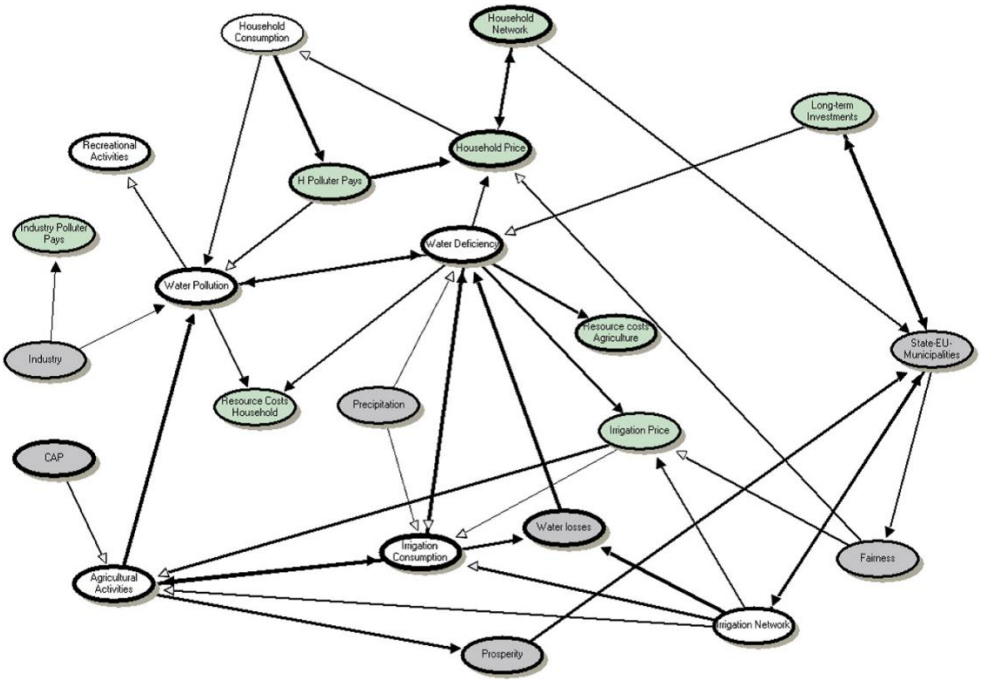


Figure 4. Social Current State Map (Mouratiadou and Moran, 2007).

Kafetzis, Roberts and Mouratiadou (2010) present another application of FCMs for elicitation of stakeholders' perceptions, this time regarding water resource management and usage in the Maritza/Meric/Evros Transboundary River between Bulgaria, Greece and Turkey. Here, the complexity of the problem being modelled increased due to the addition of political, historical and cultural issues as well as environmental issues related to land use.

In general, developing countries can benefit from the use of FCMs for water and sanitation in many ways in order to increase public participation and also to raise awareness regarding sustainable water resource management for sanitation, agriculture and food production, as well as for industries and as an energy

source. Local authorities would be able to capture the perceptions of stakeholders in a model and evaluate the degree of acceptability of different policies through simulations.

Energy

Energy is another important challenge that developing countries are currently facing. The issues regarding energy include resource generation, storage and distribution and, of course, consumption and use. Primarily, the focus for developing countries is on planning for sustainable and renewable energy, which also links with combating climate change.

Amer, Jetter and Daim (2011) proposed using the modelling and simulation capabilities of FCMs as a way to construct scenarios for wind energy deployment in Pakistan. At present, Pakistan's main source of renewable energy is generated by hydroelectricity. However, due to energy and power shortages, the government has investigated the potential of other renewable energy sources such as solar power and wind power. With the help of two experts an FCM was created (Figure 5) to represent the current state of the problem.

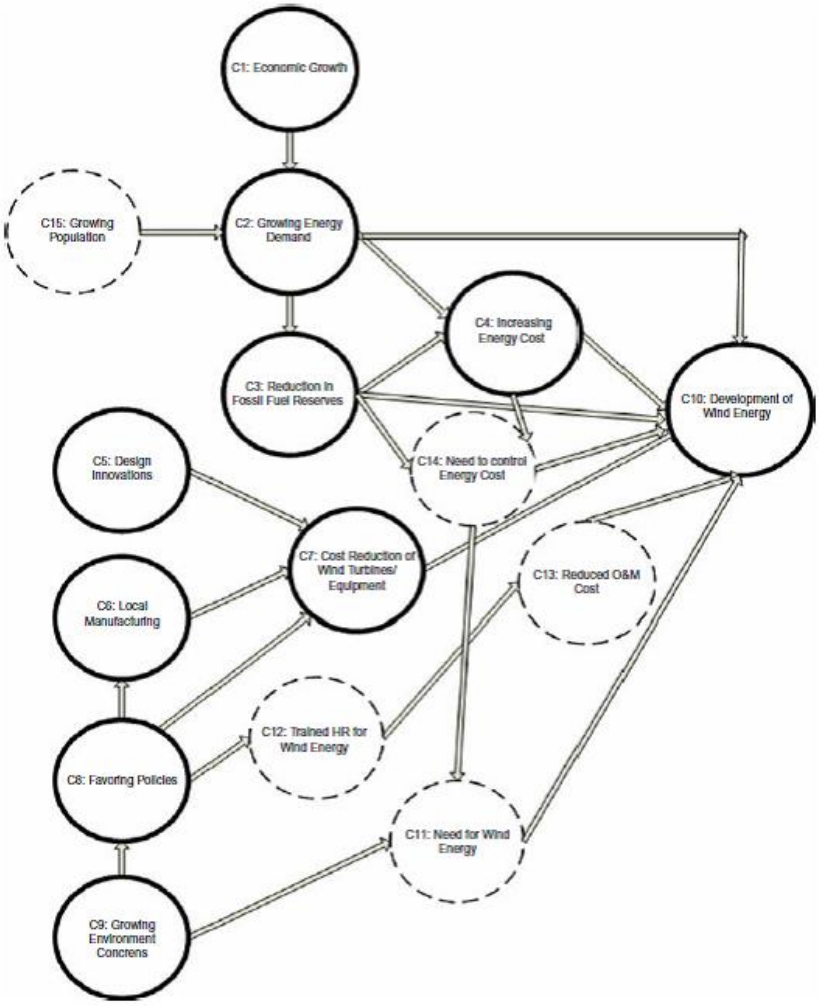


Figure 5. Combined causal map/FCM for deployment of wind energy (Amer, Jetter and Dain, 2011).

Once the model was constructed, three scenarios were examined (economic growth, economic growth and favourable government policies, growing environmental concerns) through simulation, in order to understand the effects of changes to the current situation, such as an increase in electricity demand. Using the results of simulations, the authors then prepared a technology roadmap suggesting to the policy decision-makers the necessary strategic and technology planning required for the successful deployment of wind energy in Pakistan.

Another recent investigation was conducted by Jetter and Schweinfort (2011) concerning the use of solar photovoltaic panels for residential customers. There are many critical benefits of using photovoltaic panels for sustainable development, especially in developing countries. Already, some developing countries in Africa, as well as India, Pakistan and Indonesia have adopted the use of photovoltaic panels to generate solar power for water pumping. In South Africa, several schools use solar energy generated from photovoltaic panels, while other countries, such as the Republic of Congo, have been using photovoltaic panels to run health centres. Also, photovoltaic panels have been successfully deployed for battery charging. The aim of the investigation was to create scenarios with FCMs to assess the attractiveness of photovoltaic systems using expert knowledge of industry manufacturers, as well as users. Specifically, two studies were carried out: The first study involved the opinions of two groups of stakeholders (technologists and customers), whereas the second study included six groups of stakeholders (grid experts, market specialists, forecasters, customers, photovoltaic panel users and energy consultants). Figure 6 presents the resulting FCM after combining the opinions of the two stakeholders involved in the first study.

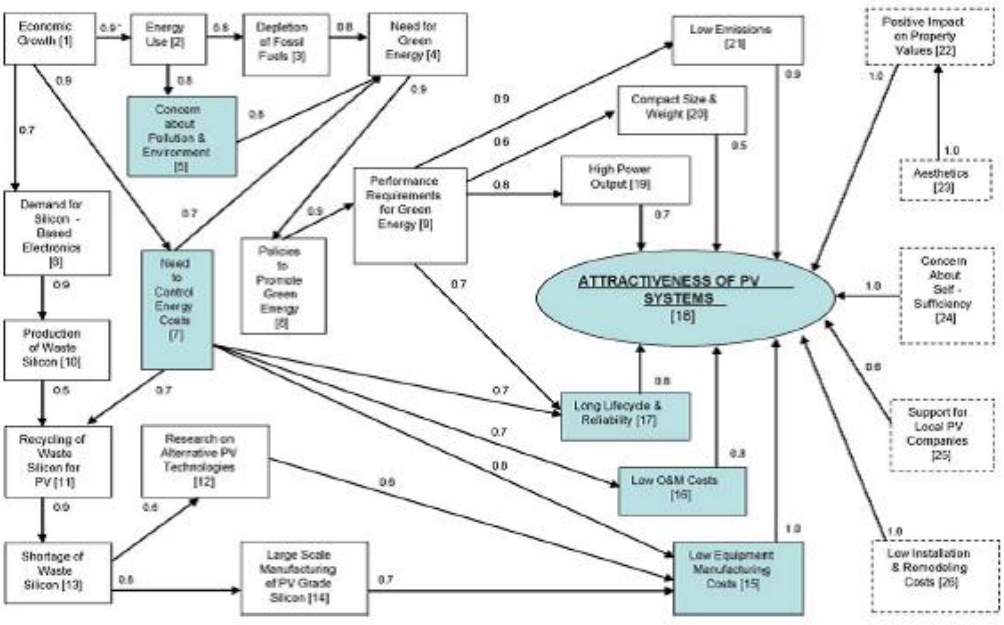


Figure 6. Integrated causal map/FCM (Jetter and Schweinfort, 2011).

In the second study, simulations were conducted to assess how the profitability and attractiveness of photovoltaic technologies is influenced by different states of economic growth and levels of government incentives. Specifically, the current state of economic growth was changed, first, to continual and, second, to stagnant. This approach using FCMs can be helpful for local authorities of developing countries to assess the impact that changes to economic growth will have on the levels of residents' attractiveness of

photovoltaic panels. Also, with the necessary modifications, the FCMs can be used to evaluate the success of the deployment of photovoltaic panels or employed to formulate policies to make the technology more available, affordable and accessible to financially poor areas.

CHALLENGES

There are several challenges that need to be addressed regarding the application of FCMs by developing countries. Firstly, it is important to consider whether or not expert knowledge is readily available for governments and local authorities to take advantage of in developing countries. There may be certain domains where policy-decision makers may find it difficult to locate and consult a sufficient number of domain experts to help in the construction of a FCM. One way to deal with this is to transfer expertise from other governments or local authorities that share similar characteristics and need to deal with the same problems. Alternatively, they can refer to governments that have already adopted FCMs as a decision-support tool in similar circumstances and make necessary modifications to the FCM models. However, this may prove too costly for many of developing countries if other governments are not willing to freely exchange knowledge and expertise. Another challenge involves the participation of stakeholders. Although FCMs are easy to understand and use, there is still some training and guidance required, particularly when using FCMs to obtain public opinions. Therefore, it is important to be able to provide participating stakeholders with the necessary information as to what exactly is the purpose of the FCMs and what is required of them in a language that is simple and non-technical. In addition, policy decision-makers will require training and material regarding modelling FCMs, as well as how to perform what-if scenario analyses in the form of FCM simulation and interpretation (defuzzification) of results.

CONCLUSIONS

This paper discussed the potential of fuzzy cognitive maps as a means to help decision-makers in developing countries tackle policy issues regarding different domains. Specifically, the use of FCMs for dealing with water and sanitation matters, as well as energy issues was explored. There are many problems in other policy domains that can also be addressed using FCMs such as transport, environment, tourism and welfare. The benefits of using FCMs primarily lie on the fact that they are easy to understand and simple to use for the purposes of assessing the acceptability and effectiveness of policies. Furthermore, their ability to allow for citizen and stakeholder participation in the actual construction of FCMs makes them a highly attractive tool for decision-makers.

REFERENCES

Amer, M., Jetter, A., & Daim, T. (2011). Development of fuzzy cognitive map (FCM)-based scenarios for wind energy. *International Journal of Energy Sector Management, 5*(4), 564-584.

Andreou, A. S., Mateou, N. H., & Zombanakis, G.A. (2005). Soft computing for crisis management and political decision making: the use of genetically evolved fuzzy cognitive maps. *Soft Computing, 9*(3), 194-210.

Axelrod, R. (1976). *Structure of decision: the cognitive map of political elites.* Princeton, NJ: Princeton University Press.

Carvalho J. P., & Tomé, J. A. B. (2004). Qualitative modelling of an economic system using rule-based fuzzy cognitive maps. In *Proceedings of the 2004 International Conference of Fuzzy Systems* (Vol.2, pp. 659-664). Washington, DC: IEEE.

Giordano, R., Pasarella, G., Uricchio, V. F., & Vurro, M. (2005). Fuzzy cognitive maps for issue identification in a water resource conflict resolution system. *Physics and Chemistry of the Earth, 30*, 463-469.

Giordano, R., & Vurro, M. (2010). Fuzzy cognitive map to support conflict analysis in drought management. In M. Glykas (Ed.), *Studies in Fuzziness and Soft Computing: Vol. 247*. *Fuzzy Cognitive Maps* (pp. 403-425). Berlin: Springer.

Jetter, A., & Schweinfort, W. (2011). Building scenarios with fuzzy cognitive maps: an exploratory study of solar energy. *Futures, 43*(1), 25-66.

Kafetzis, A., McRoberts, N., & Mouratiadou, I. (2010). Using fuzzy cognitive maps to support the analysis of stakeholders' views of water resource use and water quality policy. In M. Glykas (Ed.), *Studies in Fuzziness and Soft Computing: Vol. 247*. *Fuzzy Cognitive Maps* (pp. 383-402). Berlin: Springer.

Kosko, B. (1986). Fuzzy cognitive maps. *International Journal of Man-Machine Studies, 24*(1), 65-75.

Mateou, N. H., Andreou, A. S., & Stylianou, C. (2006). Evolutionary multilayered fuzzy cognitive maps: a hybrid system design to handle large-scale, complex, real-world problems. In *Proceedings of the 2006 International Conference on Information and Communication Technologies: From Theory to Applications* (pp. 1663-1668). Washington, DC: IEEE.

Maruyama, M. (1963). The second cybernetics: deviation-amplifying mutual causal processes. *American Scientist*, 51(2), 164-179.

McCulloch, W., & Pitts, W. (1943). A logical calculus of ideas immanent in nervous activity. *Bulletin of Mathematical Biophysics, 5*(4), 115-133.

Mkrtchyan, L., & Ruan, D. (2012). Using belief degree distributed fuzzy cognitive maps for energy policy evaluation. In J. Lu, L. C. Jain & G. Zhang (Eds.), *Handbook on Decision Making: Vol. 2. Risk Management in Decision Making* (pp. 39-67). Berlin: Springer.

Mouratiadou, M., & Moran, D. (2007). Mapping public participation in the Water Framework Directive: a case study of the Pinios River Basin, Greece. *Ecological Economics, 52*, 66-76.

Tsadiras A. K., & Margaritis K. G. (1997). Cognitive mapping and certainty neuron fuzzy cognitive maps. *Information Sciences, 101*(1-2), 109-130.

UNESCO/WWAP (2012). *The United Nations world water development report 4, Volume 1: Managing Water under uncertainty and risk*. Paris, France: World Water Assessment Programme.

Zadeh, L. A. (1965). Fuzzy sets. *Information and Control, 8*(3), 338-353.

Planning Support Systems as collaborative planning enablers

Giulia Melis

SiTI – Higher Institute on territorial Systems for Innovation, Politecnico di Torino, Italy

Abstract

The chapter explores how new digital tools, Planning Support Systems (PSS) and visualization tools in particular, incorporated in participatory processes, can be helpful in fostering the dialogue between planning practitioners, citizens and decision makers, in order to start a collaborative process. Starting from the achievements and use of ICT tools in developed countries for processes of 'citymaking', it analyses how such tools can be adapted in the context of developing countries, which challenges should be taken into account and what would the role of each actor in the process be, with a special focus on Sub Saharan Africa context. The chapter shows that current technologies and tools offer new methodologies to support collaborative planning processes, able to encourage a shift from the smart city to the people-friendly city, towards an enhanced quality of life of citizens, as well as transparency and accountability of local governments.

Keyword: collaborative planning, visualization, people-friendly city, Planning Support System, urban living lab.

INTRODUCTION

The current literature on Information and Communication Technology (ICT) and planning suggests that the use of Information Technology (IT) in local government can enhance the management and functioning of cities, introducing new opportunities for a sustainable growth of cities.

A deeper knowledge of ongoing phenomena is enabled by big data and city sensing. The increasing use of web-based and open-source Geographic Information Systems (GIS) applications raises awareness of spatial issues that impact on the local environment, while interactive mapping provides opportunities for addressing spatial concerns virtually.

This integration of IT in urban areas has generated the concept of "smart city", promoting a technology driven vision: this quantitative approach however contrasts with the social and qualitative origins of urban co-living. As a result, citizens are long away from benefitting of smart technologies within urban areas. Nowadays the debate is finally shifting towards a more human dimension, introducing the concepts of people friendliness and human-to-human approach. In this chapter, we will explore how new digital tools, Planning Support Systems (PSS) and visualization tools in particular, incorporated in participatory processes, can be helpful in fostering the dialogue between planning practitioners, citizens and decision

makers, in order to start a collaborative process, and how lessons learnt from European applications can be translated to the context of emerging countries.

Even if most of the literature focus on the experience of developed countries, where capacity and resources permit a sophisticated understanding of ICT, experiences and case studies suggest that these tools have also been tested in some developing countries - with India often cited as one of the leading countries in achieving ICT prominence - but little seems to be published about this experience in Sub Saharan Africa (SSA). There are a number of innovative initiatives underway in African local governments, even if most of them are in their initial stage. In contrast, there are a number of examples in developed countries that may provide some guidance for developing cities.

In this chapter, we will explore the application of ICT to Planning Support Tools (PSS), focusing on the process of involvement and empowerment of citizens as active actors in Urban Living Labs, using crowdsourced data in SSA. Starting from the achievements and use of ICT tools in developed countries for processes of 'citymaking', we will try to analyse how such tools can be adapted in the context of developing countries, which challenges should be taken into account and what would the role of each actor in the process be.

BACKGROUND

Cities: smart or people friendly?

The concepts of smart city and e-governance are well rooted in Western countries, and they have been marking the path in the last years, becoming almost a label for promoting the city image in the global competitive arena.

In the last decades, in order to respond the major urban challenges, that call for a transformation in the way of working and living together, the "smart city" idea towards a sustainable growth and well-being has taken the stage, suggesting that a smart city is a place where whatever interaction is mediated by technologies. This technology-driven vision has recently been criticized, moving the focus from the cities to the people: as Hemment and Townsend declared in the foreword of a recently published volume on this issue (Hemment & Townsend, 2013), the focus should be moved from Smart Cities to Smart Citizens. All across Western countries, new visions are emerging which recall the concepts of People Friendly Cities, or Human Smart City: they put the human perspective as central, and promote the application of citizen-centric and participatory approaches to the co-design, development, and production of places and services in the city (Glaeser, 2011; Gibbson, 2011). In their vision, which we embrace, the technical "smartness" of sensors, meters, and infrastructures as traditionally proposed in Smart Cities concept, should find a balance with softer features such as clarity of vision, citizen empowerment, social interaction in physical urban settings, and public partnership. This approach focuses on people and their well-being, having the Quality of Life (QoL) as its central goal: the city has to learn how to self-organize its smartness; it is aware that citizens are not only 'intelligent' but also accessible and able to make their city a place with an infinite variety of choices.

New opportunities for participation

Two technological developments are of special interest in this regard. First the rise of 'big' and 'open' data, in combination with the opportunity to generate data through sensor networks in a bottom-up way,

provides citizens with new ways to map, analyse and deal with salient urban issues. Second the usability of social media platforms allow for the bottom-up mobilization and organization of publics around particular issues. Taken together they hold the promise of stimulating new forms of 'ownership' as an 'inclusive form of [citizen] engagement, responsibility and stewardship.' (de Lange & de Waal, 2013)

Citizens participation is thus changing: from being simply considered users of urban services, citizens are more and more becoming key actors in the services conception and production. From being users, citizen becomes co-designers and co-producers of urban services; they become main engines of the innovation process because they act to solve their own problems (Periphéria project, 2013). Digital innovation ecosystems are emerging, based on citizen-driven approaches (socio-digital innovation eco-systems) such as Living Labs, where co-design methods are able to tap the creative potential of local territories. In living labs first application, i.e. industrial context, development takes place in the environment in which the products or services will eventually be implemented, and they are developed in close cooperation with various stakeholders. Especially in Europe, the concept of the living lab has recently caught on, as the European Network of Living Labs witnesses with more than 340 cases connected in 2014.

Urban Living Labs are a peculiar application in urban local contexts of this methodology, as a way of developing (urban) environments, services or practices. Five phases, or central issues, to be addressed in the process have been identified by de Waal and Melis (in press):

- setting the stage and naming the issue,
- visualizing the issue,
- engaging a public around the issue,
- ideation and prototyping,
- resolution and institutionalization.

Urban living labs are thus presented as a way to overcome the top-down bottom-up dichotomy found in recent debates on city planning. The living lab approach could be seen as a way to reconcile the top-down, structural and institutional approach of smart citizens with often small scale and one-off bottom-up initiatives of community groups, artists and citizens (Almirall & Wareham, 2008; Baccarne et.al, 2014; Coenen et al., 2014).

The issue of participation, in fact, is an intrinsic characteristic of Urban living labs: when labs are run to improve quality of life in a particular area, rather than just testing out a prototype of a product, in principle every resident is entitled to participate in the lab. However, as Friedrich et. al. point out, it is usually not practical to involve all residents in living lab sessions. They suggest that an active effort must be undertaken to identify what stakeholders are to be engaged: especially citizens for 'whom the planned changes are highly relevant and whose own life will be affected by the changes, but who are typically not active participants in civil society' should be involved in some way or another. (Friedrich et al., 2013) In some cases, however, wider public involvement is crucial in a second phase, when the problem has been defined and some solutions have been proposed, in order to achieve a 'critical mass' sometimes essential to the implementation of the process, especially when it is public-initiated.

The role of ICT and social platforms is of outstanding importance in this phase, as it facilitates the spread of ideas and collection of opinions, i.e. the birth of a public debate, around the proposed issue. ICT plays an important role in connecting people and developing projects and ideas, thanks to the high potential of

connection, especially when the issue deals with many stakeholders or involves an area where potentially numerous residents are touched by the problem.

Potential of ICT in developing countries

Actual data on the growing diffusion of mobile devices and ICT in developing countries, and in SSA especially, suggest that the stage is ready for using those resources to enable people to participate, through processes of urban living labs and facilitating tools and support of visualization, in the process of 'citymaking' of their own living places.

In the last years, a decrease of prices allowed big communication companies to sell over 2.5 billion mobile phones in developing countries, nearly doubling the number of mobile subscribers worldwide (ITU, 2011). And in 2012, the rich world finally delivered an affordable computer to the developing world, with smartphone prices in Kenya under $100. All across the globe, smartphones, rather than cheap laptops, are destined to be the true face of ubiquitous computing (Townsend, 2013). Beside this, many projects have been developed, out of the market logics, to meet the needs of people who have reduced access to technologic innovations, as low-cost laptops and netbooks (project One Laptop per Child, developed by MIT), or the Fairphone project (supporting sustainable and ethic production).

Developing countries have long struggled to build ubiquitous wired networks. Wireless networks proved to be faster to build and secured from copper thefts, allowing the benefits of connectivity to be quickly brought to large numbers of people. While the cost of building fibre-optic networks is thousands of dollars per home, delivering broadband wirelessly can cost one-fiftieth that much. As a result, 80 percent of the world's mobile broadband subscribers are in developing countries. "Wireless is the infrastructure of inclusion" (Townsend, 2013).

With the basic infrastructure of smartphones and mobile broadband in place, there has been also an explosion in services aimed at the poor. Some examples are the Indian mobile app called Babajob, an SMS-based social network for the millions of people working in the country's informal sector, described by a tech blog as "LinkedIn for villages", or Mapunity, which emulates Google's sophisticated mapping services using people's mobile devices to sense traffic speed through phone movements and taxi radios.

But mobiles are not simply new economic tools for the world's urban poor. Increasingly, mobile networks themselves are becoming observatories where we can watch in real time how people move, how cities grow, the quality of life, and economic activity. Urban sensing is delivering a huge set of data unexplored before the advent of GPS tracking on mobiles; opening up data is stimulating different researches, in developed as in developing countries.

Data sensored by mobiles have been used in interesting anthropologic and social studies. One study tracked migration in the slum of Kibera, in Kenya, uncovering an unexpectedly high turnover rate for new arrivals in the slum (Wesolowski & Eagle, 2010), while anthropologist Mirjam de Bruijn (2013) has documented Bedouin caravans in the southern Sahara that have altered their historic trade routes to periodically pass through areas of mobile phone service.

For what concerns the 'networked public sphere', as Yochai Benkler (2006) calls it, some interesting experiences have been reported, pointing out how the information environment is characterized and empowered by both the potential for many-to-many communications (instead of just one-to-one or one-to-many, as in traditional media), and the near elimination of the cost of communication.

Most case studies across Sub-Saharan Africa report small-scale projects by NGOs, using SMS for activism and advocacy. Ekine (2009) presents accounts of specific campaigns from Kenya, Nigeria, Uganda, DRC, South Africa, Zimbabwe, and Uganda, with examples of resource kit for human rights activists, alternative news sources to counter government censorship, success by leveraging media attention.

Among those experiences, the tool Ushahidi is particularly valuable, and offers opportunities to be used not only for crisis responses around the globe, but also for involving the public in the care for common urban places. Ushahidi (which means "testimony" in Swahili) begun in response to postelection violence in Kenya in 2007 (Okolloh, 2009): it documented the geographical distribution of incidents of violence, allowing those with access to the Web to see a composite map of the unfolding crisis. The system provides an open-source platform for collecting individual reports from users through SMS, Web, and email and provides tools for translating, classifying, and georeferencing these reports; the newest version of the platform further allows for submission via voice message – which is essential for illiterate users. Aggregated information is presented on a map-based interface accessible via Web and mobile phone.

Besides being a tool for aggregating citizens, it shows how visualization can play an important role in mobilizing the public around an issue, when information is relayed in "a visually compelling way". (Goldstein & Rotich, 2008-09). An interactive map is a remarkably effective narrative tool for a transnational audience.

MAIN FOCUS OF THE CHAPTER

Urbanity in Sub-Saharan Africa

According to UNHabitat (2012), it is estimated that 91 per cent of the expected increase of world's urban population will take place in developing countries. Large urban configurations come with a number of well identified, specific risks: poor urban/regional planning, lack of coordination and deficient coping strategies in the face of social and fiscal disparities (UN-Habitat, 2012). Although sub-Saharan Africa (SSA) is the home of over 900 million people, it is estimated that more than 50% of this population would be living in Cities with its infrastructure woefully inadequate to support these lives. In a region with 54 countries, 28 of these were listed among the world's 30 least developed countries having more than two-thirds of its people in SSA living on less than 2 dollars per day (Kieh Jnr, 2008).

Though urbanisation in SSA seems to have an exponential growth, the corresponding development to support it is still not adequate. Policies of spatial decentralisation of many African Countries which favour smaller cities investment and planning decisions have contributed immensely to the growth of medium-sized cities and they have been growing faster than the largest cities (Kieh Jnr, 2008). More so in developing countries, especially SSA, urbanisation and city development are characterised by 'international demonstration effect' whereby national surpluses (if any) are wasted by elite purchases of fashionable consumer goods rather than being used to stimulate the local economy. This trend is not only far from smart development but could be as well described as unintelligent.

With the current unprecedented population growth, increase rate of urbanism and the advent of the post-oil economy SSA are experiencing growth pains in its cities. Major criticalities in SSA cities include air and water pollution, congestion, noise, urban sprawl, overburdened infrastructure, inadequate public

services, and the social consequences of unaffordable housing, under-employment, crime, and under-privilege. Rising concerns about global climate change over the past decade have also elevated energy consumption and CO2 emissions to the top of the list of urbanisation challenges (Hodgkinson, 2011). One could legitimately ask, why would influx of oil-economy create growth pains? The lack or absence of well-prepared development plans and agenda to utilise these financial influx can worsen the already existing problems without providing any meaningful solution (Marful, 2014).

Urban Living Labs and e-participation

As a way to respond those needs, in a context where local institutions seem to lack of the needed ability to propose solutions, citizens can encourage the change and take action from the ground to participate in the city making process.

According to de Bouw et al. (2013) and Townsend (2013), there is the promise of new media technologies as a tool to politically empower citizens to become active agents of change in their cities.

The implementation of e-collaboration and e-participation platforms based on virtual 3D city models could support efficient workflows, data exchange, and data reuse between the actors (government, citizens, private parties). And it could raise transparency and accountability in environmental planning and ultimately foster civic engagement, as Tiwari and Jain (2013) report in their study.

Worldwide, within professionals and researchers concerned with city planning, there is an increasing interest in the involvement of citizens and other stakeholders. Approaches such as 'communicative', 'collaborative' or 'participatory' planning and the use of 'crowdsourcing' recognize that, as the American Institute of Certified Planners states in its 2009 professional code, planners shall aspire to '… give people the opportunity to have a meaningful impact on the development of plans and programs that may affect them' (Seltzer & Mahmoudi, 2013) .

This development is related to a broader shift in the concept of planning itself. It is currently undergoing a cultural transformation, from designing the physical urban environment as an efficient, static backdrop for inhabitation, towards the concept of "citymaking" (de Waal and Melis, in press). This means that planning is no longer just a decision making process about the physical organization of the city, but it is progressively including cultural aspects, liveability and social cohesion issues, and community building; which is leading the process of planning to be opened up to various stakeholders too.

Living labs are in fact characterized by the presence and active role in the process of both institutional organizations (i.e. government and its agencies), private sector (as investors or developers), and concerned citizens. One of these three parts can start the process, according to the urgency and commitment to a particular problem, and organize the involvement of the others in order to find a common solution.

Visualization tools and urban data

The interest in using new media and visualization tools to involve citizens in planning is not completely new. Starting from the end of the '80s, thanks to the fast development of graphic interfaces and micro-simulation systems, a variety of new instruments has emerged as support tools to manage urban complexity and planning decisions, involving non-expert audience: they range from electronic conference board rooms (group decision support systems) (Laurini, 1998) and GIS-supported collaborative decision-

making tools (Nyerges & Jankowski, 1997), to web-based mediation systems for co-operative spatial planning (Gordon et al., 1997) and support tools for different planning tasks (Geertman, 2002).

Commonly defined as Planning Support Systems (PSS), these tools have been largely developed in order to find new methodologies for approaching urban planning processes. Nevertheless, their few applications in real contexts outlined different limitations to their usability. In general, as reported by Te Brommelstot (2010), the family of PSS are seen by their intended users as "inadequate, far too generic, complex, too technology oriented (rather than problem oriented), not transparent enough, neither flexible nor user friendly, too narrowly focused on strict technical rationality, and incompatible with the unpredictable/flexible nature of most planning tasks and information needs" (Bishop, 1998; Couclelis, 1989; Geertman & Stillwell, 2003; Harris & Batty, 1993; Lee, 1973, 1994; Sieber, 2000; Uran & Janssen, 2003; Batty, 2003; Vonk, 2006). This list highlights how the increasing computational capabilities have not been able to solve most of these bottlenecks, which involve mainly social and communicative aspects.

In order to promote the real use of PSS in planning practice, a more inclusive and people-friendly approach is therefore being researched (Melis et al., in press), and PSS are proposed to be included in the process as facilitating tools, recognizing their importance in making issues more understandable, but not considering them as a panacea for collaborative planning.

Anyway, if they are combined as supporting tools in a process expressly designed to engage stakeholder in the solutions design, as the Urban Living lab we presented in the previous paragraph is, they potential power about clarifying issues and making them more understandable to non-expert public could be fully exploited.

What we would like to discuss here is the potentiality of success that urban living labs could have in SSA cities: unlike PSS, citizens would play an important role, either as (mostly) co-creators, or (sometimes) as initiators of the process, shaping the process and its tools according to their needs and capabilities.

Even if current trends on opening up data from city governments are gaining the stage, we can hardly consider this release to the public sufficient to make them aware of some complex issues, for example on decision regarding urban environment. To be useful, these data need to be presented in easily accessible and understandable ways. Initiatives led by citizens worldwide have experimented how graphical representation of public information can lead to changes in public opinion, encourage debate and bring to changes in legislation.

Participatory action research and design, as described by Bødker et al. (1988) and Ehn (1990), include shared analysis of common data as one of the its critical parts, however in order to be successful such a process should be designed according to the existing communicative ecology of its users, i.e. city inhabitants (Moere & Hill, 2011). Locally relevant information should be visible, and physically placed in accessible areas, in addition of being spread through media (news, mails, social networks, etc.). The public visualization of "urban" data can play an important role in providing a better understanding of a place, as it has already been shown that, by combining existing data repositories with real-time sensor measurements and qualitative citizen feedback, valuable alternative views of the city can be created, potentially even in real-time (Calabrese et al., 2007).

Such representations typically aim to reveal the salient patterns of urban living or make the impact of urban activities and their regulation understandable, such as to produce original insights into the nature of

the contemporary city (Read and Pinilla, 2006), to digitally model and simulate the city (McGrath, 2008), or to investigate the spatiotemporal actions and opinions of city inhabitants (Vaccari et al., 2009).

The resulting visual representations of the city still tend to be presented on dedicated media such as websites or smartphone applications, but Moere and Hill (2011) note that it is fundamental to have also a physical installation, in order to overcome the conceptual as well as physical separation from the actual environment from which the data originates, which present the risk of turning the urban experience into a virtual one. They present a recognition of implemented projects which use the persuasive ability of technology, proving that visualization of public data can relatively change behaviours and educate people: the Tidy Street project (Bird and Rogers, 2011) in the UK is a quite simple and inexpensive project which was successful in motivating the local community to participate in lowering energy consumptions. This project relied on data collection on one side, about energy consumption for each household in the street, and data visualization on the other side: each week a graph was drawn with coloured chalks on the street surface, thus making it possible to compare residents' consumptions (gaming) and beckoning interest from pedestrians, who spent some time gathering information on the experiment and energy efficiency (education, awareness raising). Urban Living labs could offer a concrete environment, as well as a virtual one, as an arena for visualization and debate around specific issues.

Local government plays a key role in the process of Urban Living Labs, as it represents the institutional face of the public sphere: this kind of process stimulates a more pro-active and inventive participation, which helps public officers in being closer to their citizens and learning to listen to them. In the end of the process, government gains because the city comes out with a renovated image, which relies on unique or outstanding characteristics able to promote the city towards place marketing: the city could label itself as smart and people friendly, able to conduct consultation and participation with communities, allowing for continuous two-way communication between city governments and their constituents (Odendaal, 2003). This, in some instances, is often associated with greater transparency of decision-making. All these features make the city attractive and competitive, fostering economic activities, attracting investment and visitors.

Unequal access to ICT

ICT is an fundamental tool in the process of a sort of crowdsourced Urban living lab, created, fed and designed by or with citizens: however, we have to take into account that according to the literature, the impact of ICT is ambiguous, "it unifies but also divides, it may level the playing fields in some instances, but it also brings about inequality" (Frissen, 1997).

To get an understanding of the unequal access to ICT in Africa, we could mention several case studies reported by Eagle (2009), who shows how the cost of mobile communication often effectively prohibits mass participation, even in SMS campaigns: economic and regulatory context often allow some mobile operators on the continent reap huge profits, and regulation seldom serves the public good; a political exploitation of telecommunications is also documented, for governments to expand their influence. According to Christian Kreutz (2009), the potential contributions of mobile technologies (such as expanding participation in citizen media) are limited "(1) by the costs of airtime, which strangles participation in SMS campaigns, and (2) by the cost of handsets, which means that old or low-cost phones are the norm", and thus limits access to other features, such as data and applications.

On the other hand, another view is offered by Kibora's study (2009) of SMS use in Burkina Faso: it documents the mass mobilization of SMS in everyday communication in both urban and rural areas in

Africa, despite lack of access to both cell phones and literacy. Discarded phones are recovered from dumps in Europe and imported to Burkina Faso, where they suggest modernity, utility, and business opportunity. Even in remote village communities, SMS scribes are recruited. Written language and asynchronous text messaging are used to bypass costs and difficulties with network access, but traditional norms for oral interaction (such as hierarchical speech) persist.

By the way, the majority of people in Africa (59%) are still non-users (ITU, 2010) of mobile phones. Although these non-users may not appear particularly newsworthy or remarkable, they nonetheless present an equally important group of research participants.

In this regard, Carter (1997) refers to the potential deepening of the relationship between the information 'haves' and 'have-nots' that may emerge if access to information technology and its benefits are not achieved. If ICT were to facilitate democratic and inclusive governance, it would need to address the 'Digital Divide' directly. The 'on the ground' context in terms of cultural and social make-up of its constituents and capacity that exists in terms of skills and literacy, would most certainly impact (Borja & Castells, 1996). If ICT's are to function as tools for development, in developing as well as developed countries, then skills development and improved access are key to achieving this. Underlying this technical development is the importance of social development - literacy training, public computer access and creating opportunities for participating in the IT industry.

Solutions and Recommendations

Humans are becoming an "urban" species, living in a large number of vast urban agglomerations. Cities around the world face various challenges, as the fast changing demands of demographics, mobility, energy consumption, quality of life, crime dynamics, economics, resource use, waste, culture production, and consumption, to mention just a few. While most citizens are becoming increasingly aware of the environmental, societal, and economic challenges that surround modern urban living, only few might comprehend the driving principles behind these problems, let alone reflect upon how these affect the reality of their own daily lives. Understanding and reflecting upon such urban problems is complex because of the huge quantity and variety of interrelated parameters that influence these phenomena and their inherent dependence on the local context and sensitivities of a given location. No two cities in the world, or even two neighbourhoods within the same city, are identical in the issues that residents face. Solving urban problems now requires taking into account the cultural, environmental, legal, or societal reality surrounding a specific place, in which the subjective experience and opinions of citizens are becoming as important as the physical manifestation of buildings and public services in the urban landscape. However, more localized decision-making typically requires higher resolution information gathering, in terms of quantitative measurements of the environment, but also in terms of collecting qualitative feedback from the very people who actually have to co-exist with, and within, these data.

In order to gain a truer understanding of the influencing principles and tendencies behind growing cities, one should consider how to make stakeholders—i.e., citizens— better aware of the true nature of urban challenges. By involving the local population in understanding the driving principles behind current urban issues, more widely adopted and competent actions such as those induced by legislation and policies will stand a greater chance of improving the quality of life in cities, especially when part of the solution requires city inhabitants to change their ways of living (as sustainability issues).

In order to get the implications of this changing nature of a city, a neighbourhood, or a street, we thus propose to look for it through the lens of urban data, in the form of real-time digital traces of urban

activities, as well as their qualitative impact on the local environment. By sharing this information through an expressive and socially shared medium such as a public display, we expect a sense of responsibility toward a place could be reinstated, which might even have the potential of changing local habits, attitudes, or behaviours. In the language of urban planning and urban design, this might even become a new form of "place-making."

Through Urban living labs, this process could be enhanced and organized, keeping sensitive data close to the people who generated them, and enabling them to use their own information for improving the urban quality of the environment surrounding them. To do this, equal access to ICT resources as well as to education, should be given and pursued by local governments.

Furthermore, open access to public data encourages more eyes and transparency as well as good governance, which is particularly needed in the context of SSA local and national governments in order to contrast corruption.

The process of citizen involvement, promoting decision-making that favour consensus-driven, horizontal relations, was recognized by Frissen (1997) as able to contrast traditional hierarchical structures of command that characterize many city governments: the adoption of urban Living Labs and PSS in order to have better informed and more transparent decisional processes could benefit the form of government in SSA as well.

Living Labs in developing countries

We will try here to delineate steps to be undertaken for setting up an Urban Living Lab: for each one of those, different engagement techniques can be adopted, depending on the means, the actors and their skills, ranging from very simple and basic ones to more technology oriented ones.

We present here the stages for setting up a Living Lab, which we briefly presented before, and are adapted and merged with Murray et al. (2010) stages of social innovation. These steps described are not always sequential, as their order may change according to specific needs, and they can also be thought of as overlapping spaces, with distinct cultures and skills.

- Setting the stage and naming the issue: some situation and context has to be prepared before activating the process. This is the moment in which it is necessary to identify the possible stakeholders and if there is a real possibility and will to innovate.
- visualizing the issue: problem has to be translated to a simple language, comprehensible for everybody, and main points and stakes should be clear. Visualization can be helpful in this stage, as it helps in making the issue as simple as possible. This stage involves diagnosing the problem and framing the question for a particular and contextualized situation.
- engaging a public around the issue: once the problem is defined by its initiators, more public and interested players can be engaged. Also in this case, traditional communication as well as more innovative campaigns can be used for the same purpose. In a country where the majority of people have access to the internet and are familiar with information retrieval, posting data and creating a website can be a good solution; otherwise, other media should be used able to reach a wide portion of public, through newspapers, posters, etc. and, not least, word of mouth.
- ideation and prototyping: represents the level at which ideas are generated, and successively tested in practice. The process can be different in every context, but this stage allows different

partner or stakeholders to collaborate through iteration, and trial and error, making stronger the link among them.

- resolution and institutionalization: the solution tested and refined, should then become every day practice. Ideas will be sharpened to identifying and ensure the future sustainability of the services that will carry the innovation forward. Attention should be paid to set a ranging of strategies for growing and spreading the solution.

Visualization plays a crucial role in supporting the process, as it helps to engage non-expert public: we should not think only about ICT and advanced programs for 3d modelling, which would find an appropriate public in developing countries, but also about simpler ways of communications, through performances in the public space, art installation, places where people can express their ideas in different ways. Having also online contents may help spreading ideas, and it may be more appealing especially for youngers: as Living lab is an open laboratory, we suggest each participant contributes with his/her own skills, exchanging knowledge and building capacity in his/her own community.

Future research or operational directions

This chapter proposes some considerations, supported by the literature, about the wide benefits that application of Urban Living Labs could have in developing countries, and SSA in particular. However, no experience until now has been implemented on the ground (and labelled as that), though many initiatives of co-design and participatory planning have been started, as well as citizens involvement though ICT. It is like witnessing that every piece is there, but the puzzle still needs to be put together to form the complete figure. Also in Europe, anyway, this kind of approach is still in its infancy, even if literature and reports show interesting opportunities. The economic crisis in developed countries has given a push to these bottom-up initiatives, in contexts where traditional powerful actors started to disappear from urban planning processes. That's why we think that this process could adapt and flourish also in developing countries, even if on-field testing still needs to come.

Some gaps still need to be addresses: is the "networked public sphere" really accessible by everyone? Can the Internet really be counted as a "commons" on a continent where only a minor part of the population access online media? Similarly, the constraints and high costs of SMS make the need for accessible online "public spaces" and cheap mobile. Efforts are being made towards it, but opportunities to access online platforms are still not the norm for African population. Social changes accompanying and resulting from uneven adoption of mobile communication may lead to increased levels of exclusion and inequality, as well as to enhanced participation.

CONCLUSION

The chapter shows that current technologies and tools offer new methodologies to support planning processes. Communication between developers and practitioners, as well as the interaction between the actors involved in the processes can be enhanced by the way processes are structured and tools are applied. The application of urban Living Labs supported by PSS shows that a shift from the smart city to the people-friendly city is encouraged, using data to implement planning processes and, consequently, the quality of life of citizens, ensuring transparency, accountability and public participation.

In general, the broad adoption of the Internet around the world has enabled a new class of participatory systems that allow people to contribute and share information and work together in real time (Eysenbach, 2008).

Furthermore, engaging the public transforms users from passive recipients of information to active participants in a collaborative community, helping to improve their own environment as well as their quality of life. 'The ability of small-scale initiatives in cities and regions to use advantages of the technologies, to use cyberspace, to create communication and activity networks free from the usual spatial and temporal constraints is a crucial element in providing a democratic counter-balance to other technological and global trends.' (Carter, 1997: 151–152).

The potential in achieving that in developing countries is very exciting, but it also poses serious challenges, given the constraints that need to be overcome to ensure access and exposure to the potential empowerment properties of ICTs. Local government, in its role as facilitator of development, would thereby have a key role to play in fostering this process.

REFERENCES

Almirall, E., & Wareham, J. (2008). Living labs and open innovation: roles and applicability. *eJOV: The Electronic Journal for Virtual Organization & Networks,* 10

Baccarne, B., Mechant, P., Schuurma, D., De Marez, L., & Colpaert, P. (2014). Urban socio-technical innovations with and by citizens. *Interdisciplinary Studies Journal. Special Issue on Smart Cities, 3*(4)

Batty, M. (2003). Planning support systems: technologies that are driving planning'. (S. Geertman, & J. Stillwell, A cura di) *Planning Support Systems in Practice*, v - viii.

Benkler, Y. (2006). *The wealth of networks: How social production transforms markets and freedom*. Yale University Press.

Bird, J., & Rogers, Y. (2010). The pulse of tidy street: Measuring and publicly displaying domestic electricity consumption. In *Workshop on Energy Awareness and Conservation through Pervasive Applications (Pervasive 2010)*.

Bishop, I. (1998). Planning Support: hardware and software in search of a system. *ComputersEnvironment and Urban Systems*, 22, 189-202.

Bødker P., Ehn J., Kammersgaard M., Kyng M. & Sundblad Y. (1988), A Utopian Experience, in Bjerknes G.et al.(Eds.), *Computers and Democracy: A Scandinavian Challenge*, Williston, VT: Avebury.

Borja, J., & Castells, M. (1996). Local and global: management of cities in the information age. Earthscan: London.

Bouw, M., de Lange, M. & de Waal, M. (2013). De hackable wereldstad. In j. Lekkerkerker, & S. d. Vries (Eds.), *Ruimtevolk jaarboek 2013. nieuw kapitaal* (pp. 163-167) Ruimtevolk.

Calabrese, F., Kloeckl, K., & Ratti, C. (2007). Wikicity: real-time urban environments. *IEEE Pervasive Computing*, *6*(3), 52-53.

Carter, D. (1997). Economic regeneration and the information economy. *The governance of cyberspace: Politics, technology and global restructuring*, 136.

Carter, D.(1997).'Digital Democracy' or 'information aristocracy'? Economic regeneration and the information economy. In B. D. Loader (Ed.), The governance of cyberspace: politics, technology and global restructuring. London: Routledge.

Coenen, T., Graaf, S. v. d., & Walravens, N. (2014). Firing up the city - A smart city living lab methodology. *Interdisciplinary Studies Journal. Special Issue on Smart Cities, 3*(4), 118-128.

Couclelis, H. (1989). Geographically informed planning: requirements for planning relevant GIS. 36th North American *Meeting of Regional Science Association.* Santa Barbara.

de Bruijn M. E. (in press). Mobile Telephony and Socio-Economic Dynamics in Africa, in Ingram G.K. & Brandt K.L. (Eds.), *Global Infrastructure: Ongoing realities and emerging challenges*, Cambridge, MA: Lincoln Institute for Land Policy.

de Lange, M., & de Waal, M. (2013). Owning the city: New media and citizen engagement in urban design. *First Monday, 18*(11)

de Waal, M., & Melis, G. (in press). Urban Living Labs & Citymaking: Open innovation and urban design. In Cohen, B. & Almirall, E. (Eds.) *Open Innovation as a driver for Smart Cities*, Springer.

Eagle N. (2009). Economics and power within the African telecommunications industry, in Ekine, S. (Ed.), *SMS Uprising: Mobile Phone Activism in Africa.* Cape Town: Pambazuka Press.

Ehn P. (1990), *Work-Oriented Design of Computer Artifacts*, Amsterdam: Lawrence Erlbaum.

Ekine, S. (Ed.) (2009). *SMS Uprising: Mobile Phone Activism in Africa.* Cape Town: Pambazuka Press.

Eysenbach G. (2008). Medicine 2.0: Social networking, collaboration, participation, apomediation, and openness. *J Med Internet Res*, 10: e22.

Friedrich, P., Karlsson, A., & Federley, M. (2013). *Report 2.1 boundary conditions for successful urban living labs*. SubUrbanLab project report. Retrieved July, 2014, from http://jpi-urbaneurope.eu/wp-content/uploads/2014/01/Report-Boundary-conditions-for-successful-Urban-Living-Labs.pdf

Frissen, P.(1997). The virtual state: postmodernisation, informatisation and public administration. In B.D. Loader (Ed*.), The governance of cyberspace: politics, technology and global restructuring*. London: Routledge.

Geertman, S., & Stillwell, J. (Eds.). (2003). *Planning Support Systems in Practice.* Berlin, Germany: Springer.

Gibbson W. (2011). Life in the Meta City, *Scientific American*, September, 88-89.

Glaeser E. (2011). Engines of Innovation, *Scientific American*, September, 50-55.

Goldstein, J., & Rotich, J. (2008). *Digitally networked technology in Kenya's 2007–2008 post-election crisis*. Berkman Center Research Publication.

Gordon, Th., Karacapilidis, N., Voss, H. & Zauke, A. (1997). Computer-mediated cooperative spatial planning, in Timmermans, H. (Ed.), *Decision support systems in urban planning* (pp. 299–309), E. & F. N. Spon.

Harris, B., & Batty, M. (1993). Locational models, geographical information and planning support systems. *Journal of Planning Education and Research, 12*, 84-98.

Hemment, D., & Townsend, A. (2013). *Smart citizens*, FutureEverything Publications.

Howe J. (2006). The rise of crowdsourcing. *Wired Magazine*.

ITU (2011). *The World in 2011: ICT Facts and Figures*, International Telecommunications Union, Geneva. Retrieved July, 2014, from http://www.itu.int/ITU-D/ict/facts/2011/material/ICTFactsFigures2011.pdf

Kibora, L. (2009). Téléphonie mobile: l'appropriation du SMS par une 'société de l'oralité'. *Mobile Phones: The New Talking Drums of Everyday Africa, Cameroon/Leiden: Langaa/ASC*, 110-24.

Kieh Jnr, K. G. (2008). *Africa and the Third Millenium*. Asmara: Africa World Press.

Kreutz C. (2009) Mobile activism in Africa: future trends and software developments, in Ekine, S. (Ed.), *SMS Uprising: Mobile Phone Activism in Africa.* Cape Town: Pambazuka Press.

Laurini, R. (1998). Groupware for urban planning: an introduction. *Computers, Environment and Urban Systems*, 22(4), 317–333.

Lee, D. B. (1973, May). Requiem for Large-Scale Models. *AIP Journal*, 163-77.

Lee, D. B. (1994). Retrospective on large-scale urban models. *Journal of the American Planning Association*, 60(1), 35–40.

Marful, A. B. (2014) Smarting the City or Development: The Dilemma of the Post-Oil Countries in sub-Saharan Africa. Paper presented at RealCorp conference, 2014 Published online, in Schrenk M., Popovich V., Zeile P. & Elisei P, Proceedings REAL CORP 2014 Tagungsband 21-23 May 2014,Vienna, Austria. Retrieved July, 2014, from http://www.corp.at/archive/CORP2014_136.pdf

McGrath, B. (2008). *Digital modelling for urban design*. Wiley Publishing.

Melis G., Masala E. & Tabasso M. (in press), From the Smart City to the People-Friendly City. Usability of tools and data in urban planning, in Vesco, A., Ferrero F. (Eds.) *Social, Economic, and Environmental Sustainability in the Development of Smart Cities*, IGI Global

Moere, A. V., & Hill, D. (2012). Designing for the Situated and Public Visualization of Urban Data. *Journal of Urban Technology*, *19*(2), 25-46.

Murray R., Caulier-Grice J., Mulgan G. (2010) *The Open Book of Social Innovation*, The Young Foundation, NESTA.

Nyerges, T., & Jankowski, P. (1997). Adaptive structuration theory: a theory of GIS-supported collaborative decision making. *Geographical Systems*, 4(3), 225–259.

Odendaal, N. (2003). Information and communication technology and local governance: understanding the difference between cities in developed and emerging economies. *Computers, Environment and Urban Systems*, *27*(6), 585-607.

Okolloh, O. (2009). Ushahidi, or 'testimony': Web 2.0 tools for crowdsourcing crisis information. *Participatory learning and action*, *59*(1), 65-70.

Periphèria Project (2013), *Policy document. white paper: human smart cities*. Revision: [V 3.0], 18.05.2013. Retrieved July, 2014, from http://www.peripheria.eu/library/peripheria-policy-document

Read, S., & Pinilla, C. (2006). *Visualizing the invisible: towards an urban space* (Vol. 1). Purdue University Press.

Seltzer, E., & Mahmoudi, D. (2013). Citizen participation, open innovation, and crowdsourcing challenges and opportunities for planning. *Journal of Planning Literature, 28*(1), 3-18.

Sieber, R. (2000). GIS implementation in the grassroots. *URISA Journal*, 12, 15–29.

te Brömmelstroet, M. C. (2010). Equip the warrior instead of manning the equipment: Land use and transport planning support in the Netherlands. *Journal of Transport and Land Use, 3*, 25-41.

Tiwari, A., & Jain, D. K. (2013, December). 3D City Model Enabled E-Governance For Sustainable Urbanization. In *14th Esri India User Conference id: UCP0024* (pp. 11-12).

Townsend, A. M. (2013). *Smart cities: Big data, civic hackers, and the quest for a new utopia*. WW Norton & Company.

UN-Habitat (2012). *State of the World's Cities 2012/2013: Prosperity of Cities*, Nairobi: UN-Habitat.

Uran, O., & Janssen, R. (2003). Why are spatial decision support systems not used? Some experiences from the Netherlands. *Computers, Environment and Urban Systems, 27*, 511-526.

Vaccari, A., Calabrese, F., Liu, B., & Ratti, C. (2009, November). Towards the SocioScope: an information system for the study of social dynamics through digital traces. In *Proceedings of the 17th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems* (pp. 52-61). ACM.

Vonk, G. (2006). *Improving planning support; the use of planning support systems for spatial planning.* Utrecht: Nederlandse Geografische Studies.

Wesolowski A., & Eagle N. (2010), Parameterizing the Dynamics of Slums, *AAAI Spring Symposium 2010 on Artificial Intelligence for Development (AI-D).* Retrieved July, 2014, from http://ai-d.org/pdfs/Wesolowski.pdf

PART 3 - E-GOVERNANCE IN PLANNING, SLUM UPGRADING AND HERITAGE

CHALLENGES

QUICK FACTS

POLICY POINTS

What's after Land Tenure? From squatter Settlements to Participative Local Governments

Claudia Sakay(*), Paola Sanoni(**), Toshihiro Hanazato(***)

(*) B. Architecture & Urbanism, M.A.D. in Architectural Design, Ph.D. candidate in Architectural Design at The University of Tsukuba, Ibaraki, Japan. (**)B.A, M.A. in International Studies, Ph.D. candidate in International Public Policy at The University of Tsukuba and Honorary Research Fellow at The University of Queensland. (***) Deng, Professor, Faculty of Arts and Design, The University of Tsukuba.

Abstract

Land tenure security enforces community participation in local governments. Also, it promotes Community Based Organizations (CBO) as social inclusion strategy in the process of urban inclusion due to their influence on local governments for decision making. In 1983 in the squatter settlement of Manchay, the need for survival generated a reason for establishing CBO in the search for land tenure rights. In 2013, these communities were facing the challenges of inclusion to the local government system. The role of Information and Communication Technologies (ICT) is to facilitate communication between citizens and governmental institutions for compliance of their rights and be included in the process of governance. This study analyzes the role of CBO in the squatter settlement of Manchay in Lima during the process of achievement of legitimate land rights towards their inclusion on their local government and how ICT contribute to this inclusion process. Empiric data collection registers 73 in-depth structured interviews taken between 2010-2013.

Keywords: Squatter Settlements, E-Governance, ICT, CBO, Land Tenure, Participative Government

INTRODUCTION

Information and Communication Technologies (ICT) provide a set of tools to support the processes of communication between the communities and individuals. Also, provides the tools to establish a liaison with their representatives and authorities creating ties of joint effort and trust, promoting collaborative processes of e-governance in a platform where every citizen has the right to express their needs, opinions and propose solutions to solve the significant problems in their locality. In Peru, the implementation of e-governance informatic platforms and ICT tools are used to articulate, moderate and summarize the citizen's contributions and feedback which facilitates open access to information for all citizens. The usage of ICT contributes toward the promotion of national programs, particularly in squatter settlements

where low-income populations can access to information and establish communication with their representatives in local government online 24 hours a day from private cabins and telecenters.

Squatter settlements in Peru have a long history due to a process of informal and rapid urbanization which reached its record in the 1960's (Riofrio, 2003). In the last 20 years these informal neighborhoods mainly characterized by inadequate access to water and sanitation, poor quality of housing and insecure residential status continue in the struggle of demand for the property of the land, as the need for housing and infrastructure has never ceased (UN-Habitat, 2007). Consequently, the social, economic, political, spatial and environmental conditions open debate about the association between the illegal conditions of squatter settlements with the process of legalization of the properties for the urban poor.

Observations and assertions during the land formalization process, has led to the communities to organize themselves to claim for installation of basic utilities such as electricity, water, sewage and access to communication means from their local governments. These demands show that the concept of safety for squatter populations is related to improved conditions of housing and neighborhoods (Durand-Lasserve, 2006). In this scenario community participation becomes the mechanism of communication of squatter settlements and their authorities accomplishing a role in sustainable development becoming the new paradigm on how the poor increasingly take the initiative in ensuring their needs, rights and tenure security.

In this context, Community Based Organizations (CBO) are considered representatives of the citizenship being able to be involved in the design process, implementation and management of community improvement projects. Therefore, CBO become into the key characteristic of social organization in squatter settlements as they mark the patterns of communication between citizens and their local governments promoting participation and establishing mechanisms for e-governance. This phenomenon explains the importance of these organizations for the spreading of ICT on the implementation of e-government processes. Using ICT as open platforms for exchanging needs and solutions in the form of opinion, local authorities can receive information and ideas about the settlement issues, often jeopardized before by fear of eviction or retaliation.

E-governance in squatter settlements can support and simplify governance for all parties, supporting the delivering of government products and services, promoting exchange of information, streamlining communication, transactions and system integration using ICT. Thus said, ICT become the pieces of the puzzle with capacity to break all barriers of communication from the citizens to the government. Still, access reminds uncertain in a population with limited resources. On the other hand, squatter communities are demanding for transparency on the resources management of local governments, autonomy after decentralization, and more independence to express their demands, prerogatives and priorities. In response, governments had shown interest over the implementation of platforms for e-governance to address specific needs of their communities by opening a communication channel for all citizens.

This chapter aims to identify the use and functionality of ICT and the incipient processes of e-government implemented in the squatter settlement of Manchay in Lima-Peru during the process of achievement of legitimate land rights towards their inclusion on their local government. It is the focus of the chapter to explain how e-governance and the use of ICT can improve communication between illegal occupants of the land and local authorities. Also, to explain what happens when inhabitants become owners with rights for participation on policy making in their local governments and how they conceptualize the so called process of social inclusion. Literature review, observation, interviews and empiric data collection has

been used to gather information. Data processing facilitated cultural understanding of their communication means and relations with government institutions. 73 in-depth structured interviews have taken place between 2010 and 2013 in the first plot of the squatter settlement of Manchay, in the district of Pachacamac (Lima, Peru).

BACKGROUND

In Peru, the process of irreversible migration from the Andes and the Jungle into the peripheral areas of Lima capital city in the coast started on the 1950's and getting more intense in the 1980's and 1990's due to the collateral effects of political conflicts and terrorism in rural areas. Squatter settlements grew by means of occupation of private lands or governmental resettlement projects on peripheral land owned by the state resulting in both, the informal and formal land tenure arrangements (Calderon, 2004). In response to the continuing land invasion, the correspondent authorities of the government of Peru had eventually legalized most informal settlements applying a combination of mechanisms of land tenure, land registration and implementation of infrastructure projects. Also, processes of participative policy making established by law promote the inclusion of inhabitants opinions and proposals into the local governance process, giving space for the use of ICT as tools for collecting ideas, opinions and responses enforcing dialogue between citizens and authorities.

At this point, it is important to understand the background of land tenure in squatter settlements before 2000's where informatics was introduced as massive tools to facilitate processes in government administration in Peru. During 1982-1986, the metropolitan municipality of Lima extended 134 thousand land titles in the attempt to provide formalization to most of all squatter settlements. However, more than 100 thousand of them were lots without basic services. Land regularization became incoherent and fragmented, but saved money to the State (Calderon, 2004). While authors like De Soto (2000) are convinced that the effect of land titles is usually significant, others think that the effects are only moderate (De Souza, 2011; Gilbert, 2002; Payne, 2001). In 1996, the formal land tenure is backed by statutory law by the legalization of the informal land by the creation of the Commission for the Official Registration of Informal Property (COFOPRI). COFOPRI policy was supported by the World Bank and was inspired by the vision and ideas of the Peruvian economist De Soto (2000) who has the opinion that legalization of ownership and registering titles had a positive effect on the squatter populations. COFOPRI comes chronologically with the penetration of internet in public administration (1996) incorporating later the massification of connectivity services and e-government, promoting the use of ICT for inclusion of people's opinion on policy making as declared on their website, but still lacks of processes that evidence such as determination.

At the same time, the implementation of community participation in squatter settlements in Peru has relatively a long history, bringing the creation of Community Based Organizations (CBO) which are the core outset of a land invasion and during the whole settlement process (Riofrio, 2003). The incentives to organize collectively come from the need to shape formal representative leaders for negotiations with the local authorities in order to clear the legal issues and to solve basic needs for population welfare such as formalization before COFOPRI, implementation of potable water, sewage, electricity, health, nutrition and education.

ICT AND E-GOVERNANCE IN SQUATTER SETTLEMENTS

ICT have been defined widely on the literature, generally accounted as all sorts of data processing and transmission instruments that provide communication means to enhance understanding between citizens. In this chapter, ICT are defined in the context of current use by governments as a transversal tool to promote communication and coordination between institutions, transparency of the public management, and to connect public servants and citizens toward a space of understanding state functions and capacities and citizens' needs for improving formulation, implementation and evaluation of processes and policies.

The utilization of ICT contributes toward support of rapid urban growth through communications flows and interaction between individuals and organizations helping to connect and integrate people to communities associated by interests. Once infrastructure has been provided, the low cost of maintenance of the use of these technologies, facilitates access for depressed economies making it more accessible than phone service or even mobile services. Thus, in poor societies such as squatter settlements, ICT has shown evidence of being useful for promoting social and economic dynamism (Wheeler et. al, 2000).

The use of ICT to support the processes of e-governance is a powerful incentive for participation of the urban poor on the decision-making because it improves coordination for delivery of basic services; enhances local development opportunities and promotes political accountability due to the need of response (UNDP, 2003). However, in developing countries, the main problem on e-governance is related on the availability of ICT infrastructure. Despite the huge potential of ICT to assist communities to increase their overall well-being through community development, the lack of external funding for equipment can be a barrier to success as provision in itself is no guarantee of successful adoption in community (Harris, 2001). The ICT use in public sector is very little, and therefore they had a poor, if any, ICT infrastructure as the first stage for an e-government is the organization of processes of their internal operations, services and then the change toward internet-based systems. (Bhatnagar & Bjorn-Andersen, 1990). Moreover, e-government in squatter settlements must accommodate certain unique conditions, needs and obstacles (Heeks, 2001). For instance, they have poor infrastructure, weak educational systems, and unequal access to technology. Also, there are community based disadvantages resulting from uneven societal adoption of ICT (Castells, 2000). Provision of infrastructure for ICT access (broadband) either high or low capacity through government and private sector efforts by itself is insufficient to address these issues (Marshall et. al, 2003).

The presence of ICT in squatter areas is becoming complex between the space of flows and the space of places which binds new landscapes, political and cultural interactions (Castells, 1999; Skeates, 1997). In other words, the implementation of ICT addresses to invigorate political relations by allowing direct community participation in government, avoiding mediations and optimizing the representative process and expanding participative democracy and governance. Therefore, squatter communities can use the access to ICT modifying their living conditions such as organizing projects related to land tenure regularization, infrastructure improvement and housing development. This is using ICT for promoting changes in policy through communicating with their authorities and representatives, which otherwise becomes a bureaucratic mission for both groups of interest: communities and local governments.

E-government in the context of Peru

The Republic of Peru is an autonomous State located in South America between Ecuador, Colombia, Brazil, Bolivia, Chile and accounts with 200 miles of autonomy over the Pacific Ocean along of 3080 km on the side of its west coast (INEI, 2013). The capital city and business center of Peru is Lima in a highly centralized state in process of decentralization from 1990's. Peru is a democratic republic with a multi-party system. Regional and local governments are elected for 4 years in general elections. The State is accounted by three powers: executive, legislative and judicial. The Ministries of the State are in charge of the executive power which controls the mass of the government's budget. Its portfolio is organized by national interest including the Ministry of Dwelling Construction and Sanitation with its Commission for the Official Registration of Informal Property from 1996 (COFOPRI) in charge of land tenure and titling, and the Ministry of Transport and Communications (MTC) and its technical specialized organ the National Office of Electronic Government (ONGEI) in charge of ICT for promoting e-government and social inclusion. ICT have been used to modernize the processes of governance and offer a platform for the interaction of citizens and their representatives to promote participative decision making and improve their access to governmental services at local levels.

ONGEI is in charge of regulation and implementation of the national policy of e-government and to rule and supervise the informatic activity of the State departments, information security, development of ICT and offering informatic and technical advice to public entities. This office is in charge of the administration of several websites of the State, including the website of the Peruvian State, which is in the highest hierarchy, constituted as the interactive system of information for citizens through the internet; the website for Services to the Citizens and Enterprises (PSCE), website of the Commission for development of the Society of Information (CODECI), etc. ONGEI office is also in charge of the National E-government Policy 2013-2017, and the National Plan for E-government 2013-2017, establishing as a principle to promote social inclusion (ONGEI, 2014).

CODECI is a multi-sectorial commission created in 2003 which main objective has been the elaboration of a development plan for the Society of Information in Peru to align the interest of the government sectors (economy, education, health, transport, communication, welfare, dwellings, etc). The document produced has been named the Peruvian Digital Agenda, on the schedules of the executive power and from its creation had the advocacy of monitoring and assessing the Plan of Development (CODESI, 2014). CODESI is now active part of ONGEI, integrated by members from the government, enterprises and citizen representatives. It has a role as a facilitator of spaces for concentrating opinion and will from the strategic partners on breaking the digital divide, including private enterprises, telephony operators, institutions of international support, community representatives, etc., and their mechanisms are designed for generating dialogue and promoting understanding and agreement among different groups of interest toward development.

Local governments are using ICT through municipal platforms to interact with governmental institutions. In 2002, after promulgation of the Law of Transparency and Access to Public Information (supreme decree no. 072-2003-PCM), the central government establishes as mandatory the use of ICT for public institutions to communicate with the citizens over the official website that government provides for such a purpose. Thus, public institutions are committed to publish and maintain updated important information about budget, performance, indicators, public services and projects of public investment.

Participation in the decision-making could only be reach if communication is established (Bulter, 2011). Besides, the adoption of telecommunications law in Peru obligates private operators to provide services all over the country. Thus, 98% of squatter settlements in Lima city had connection to electricity networks until 2000 (Calderon, 2004). The demand for ICT has brought that almost all populations may have access to telecommunications networks through broadband internet or mobile phones, landline phones and satellite television and they are able and willing to pay for these services (Sanoni, 2012).

E-governance processes in the squatter settlement of Manchay

Established in 1983, Manchay is an example of a self-created and self-development squatter settlement located in the city council of Pachacamac about 24 kilometers southeast of Lima city, Peru. With a total of population of about 50 000 inhabitants, Manchay is a sample of gradual invasions the quality of housing, infrastructure, and other amenities in squatter settlements (Figure 1). Manchay is a large community covering an extension of 11 kilometers long and 4 kilometers wide and due to the rugged topography in which is developed, the entire squatter settlement is geography divided in 28 sectors. Because of these characteristics, the entire community cannot participate as a whole in decision-making and the settlement management has been decided into smaller units. In this way, is easily led to a divide, control and rule situation (Sheng, 1990; Sakay et. al, 2011).

Figure 1. General view of the squatter settlement of Manchay. Source: C.Sakay, 2013.

Squatter settlements are represented by community members due to the massive fight against poverty that keeps them together from the invasion of the land toward the construction of their dwellings. Manchay's population had organized themselves in community organizations abbreviated as CBO's. The name of the main CBO that supports the processes of land tenure and represents the citizens before the local authorities is CUAQUEM. The name means "Unique Central Organization of Manchay" and represents the town comprising a group of leaders that represent the 28 sectors. CUAQUEM has been accomplished for the creation of a plan for the management of settlement giving responsibilities to others CBO to provide safety, welfare, infrastructures and land tenure. This well-organized social and political structure provides a better understanding of their needs facilitating the development of projects to improve the squatter settlement in a short time (Sakay & Hanzato, 2011). CUAQUEM is the main partner of the local

government for promoting the use of ICT and the implementation of e-government processes in Manchay as a leading organization.

Manchay belongs to the Municipality of Pachacamac, in the borders of the urban city of Lima. Following the Law of Transparency and Access to Public Information, the Municipality of Pachacamac has been working on the implementation of ICT to be used as a communication tool for improving local participation and redesigning administrative and management processes to modernize the delivery of local services using the resources of e-governance. Through the creation of the website in the year 2000, it aims to provide services information, future projects, annual budgets reports and public projects with the objective of promoting integration of their community members and offering tools for strengthening the relations between authorities and communities by providing a platform of communication to potent the interaction between governance and citizenship.

Following Table 1 shows that from 73 surveys, the most used technology are radio (94%) and television (57%) as a communication means to receive nationwide and international information. Differences between the use of mobile telephony and landline telephony (including sms) are significant. 82% of the interviewers prefer a mobile because of the low prices and easy access. By contrary, landline telephony has high fee services and is a requirement to present the formal documentation of the property at the time to sign to sign a contract with the private company. Use of computer means access to ICT and improves communications through use of internet for a small fee, being a common way in urban environments. In the case of squatter settlements as Manchay, 53% of the population cannot afford a computer. Almost half of the population has no access of internet at home but 39% have access to internet from the dwellings (Table 1) showing their interest for connectivity. On surveys, inhabitants stressed the difficulties of communication and the costs of infrastructure and the high prices of access to networks. Still, there is no evidence to link the use of internet and their application in e-government processes.

Type of CBO in Manchay	Activities	Total Number of Groups	% of Participation (n-73)
Community Organization (CUANQUEM)	Land regularization Instalation of electricity Instalation of water	1	42%
Community Managed Kitchens (Comedores Populares)	Nutrition Provide meals at subsidised prices	95	21%
Glass of Milk (Vaso de Leche)	Nutrition Provide a glass of milk a day to children, ederly population	42	13%
Mothers Club	Socioeconomic acticities support Health and wellness	15	9%
Youth Club	Education support	8	2%
Association of Vendors and Enterpreneurs	Generate income activities	1	8%
Association of Small Farmers of Manchay (APACAM)	Agriclture production	1	5%

Table 1. Percentages of population with access to communications. Source: by the authors.

Since 2000, in Manchay the need of access to internet connection and mobile phones has led to the community the creation of telecenters, named as public cabins to access the internet in Peru. By definition, a telecenter is a physical space which allows public use of internet and facilitates access to ICT

for educational, social media networking and economic development (Gomez & Gould, 2010). Telecenters are profitable micro-enterprises which provide a number of small services such as text printing, copies, fax, and eventually long-distance phone calls charged on pre-paid cards to be used on web-line based global operators. Telecenters belong to the original proposal of the Peruvian Scientific Network (RCP) established in 1991 as a private association compromised with the promotion and development of internet in Peru and pioneer in Latin America as a strategy to open access and persuade policy makers at the time for investing in universal access (RCP, 2014).

In Manchay, like other squatter settlements in Peru, the role of the telecenters is to support the achievement of digital inclusion for low income populations, who cannot afford the cost of private internet services or a computer at home, but are able to pay short term access in communitarian basis. In Manchay 6 of the 16 families who had land ownership granted and were interviewed (Table 2) are running home-based business: they run telecenters in the form of private cabins renting a computer with internet access per hours (Figure 2). Even there is no evidence that connects the use of telecenters and the participation of citizens in local governments, an interesting trace is the frequency of posts, the information in the post about activities and community events and the number of active members of the social media network website of the Municipality of Pachacamac[lxx] which also raises the issue of access.

Education Degree	% of Households n=73	% of CBO's leaders n=13
No education	30	13
Elementary School	31	62
High School	25	0
Technical incomplete	2.5	15
Technical complete	6	10
University incomplete	2	0
University complete	3.5	0

Table 2. Type of home-based business in Manchay. Source: by the authors

Figure 2. Pictures of home-based business telecenters in Manchay. Source: C.Sakay, 2013.

E-governance and the informal property of squatter settlements in Manchay

In Metropolitan Lima, poor urban families are openly inclined to obtain legal property rights to their homes and not just take possession of them (Calderon, 2004). The traditional system of titling and registration in Peru is complex, inefficient and expensive making it prohibitively for poor people. The common failure of the government to defend or even recognize informal tenure rights in individual disputes gave rise to rent-seeking behavior in the form of invasions of untitled land (Olortegui, 2001).

In 1991, a Peruvian non-governmental organization embarked on an innovative property titling project in the capital city of Lima whose goal was "the rapid conversion of informal property into securely delineated land holdings by the issuing and registering of property titles" (World Bank, 1998a). Between 1992 and 1995, roughly 200,000 titles were issued at an extremely low cost, convincing the government and a growing international audience of the potential for efficiency gains from urban property formalization (World Bank, 1998b). In 1996, supported by the World Bank, the Commission for the Official Registration of Informal Property (COFOPRI) was created. The role of COFOPRI is to assure formal and sustainable rights to real state property in selected and poor settlements in larger urban areas. As the officially registering of COFOPRI is not mandatory and can be troublesome for squatter populations because of costs and the long process. The results are that most of the squatter households prefer to avoid it or leave it for later in which the land and housing subdivisions have already taken place (Sakay, 2012). Although COFOPRI (2014), have already distributed more than two million urban property titles in urban areas in Peru until May 2014 (Figure 3), it is important to note that during the year 1999 and 2000 the relative political stability of the country has allowed the land regularization policy to be implemented without much political opposition.

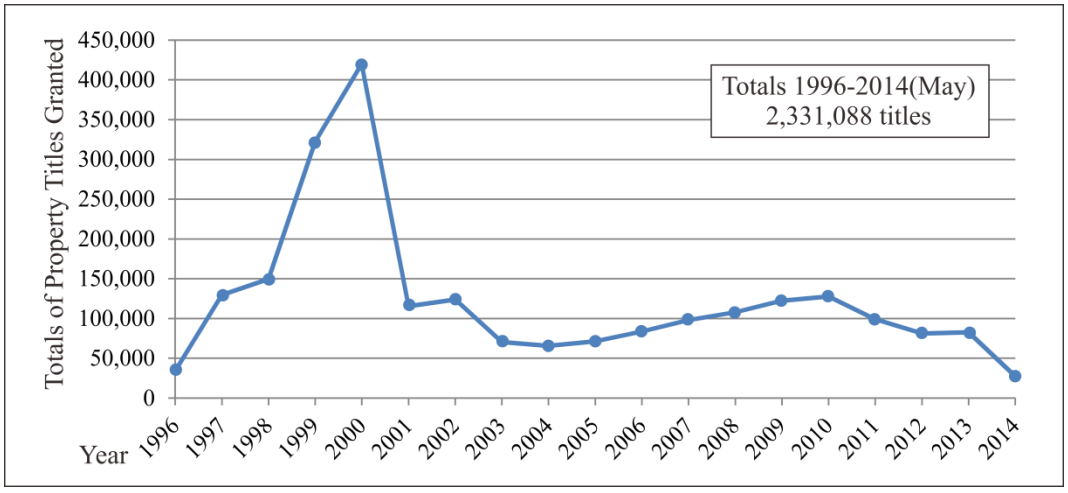


Figure 3. Property titles granted by COFOPRI in urban areas. Source: by the authors based on COFOPRI statistics, 2014.

From the year 2000, COFOPRI started using their website for spreading information about processes of registry of informal property for citizens. In this website, linked also to the official site of the Peruvian State, COFOPRI publishes cadastre information including maps, property conditions such as: number of floors, type of building or if the property is serviced by potable water, electricity or sewage for

municipalities and other public interested in such as figures. Then, COFOPRI website has to satisfy two main groups of interest: individuals and local governments.

The legalization process of COFOPRI in 2014 is much more transparent as a result of the application of the National E-Governance Policy through participation of ONGEI. This programme aims to implement ICT for facilitating processes of land formalization by increasing access to public information through COFOPRI website[lxxi]. In this website citizens from Manchay and every community can access to online information related to land tenure formalization such as location of main offices, new calls for titles registration, requirements and also making online inquires about the status of their properties or the profile status of the property title requested. Citizens can send consultation and messages using a private e-mail account (that can be obtained free online) for receiving response to their enquiries, but still is not possible to start the process of registration of their land by filling an online request. For example, CUAQUEM CBO representatives in Manchay had access to the information online and organized themselves to get together in December 2013 to spread the news in their community, as all information was available, making possible for them to explain the processes and information for other community members who may not be able to connect. Thus, communities can get together and discuss about these issues, and work on common agreements to proceed. As well CBO representatives may contact their local authorities to express their opinion. This is the mechanism how CBO can support their decisions as a group of influence over local policies based on public information spread by ICT.

E-governance and Community Based Organizations in Manchay

The concept of community participation was created and defined by the United Nations in 1955 to address the issue of community development as a process which creates conditions of economic and social progress for the whole community through its active participation (Kombe & Kreibich, 2000). In other words, this community participation is defined as a group of people with a sense of belonging and values that represents the involvement of community members towards meeting common interests of securing tenure. This is the main reason why many authors agree on the incorporation of community participation into land regularization policy as an alternative approach adoption in land management activities (Muraya, 2006; De Soto, 2000; UNCH, 1991).

E-governance meaning has evolved as an information and electronic model of governance that seeks to achieve processes and structures for harnessing the potentialities of ICT at various levels of government and the public sector. Meanwhile, CBO represent spontaneous initiatives of citizen organizations to render services to the community becoming a mechanism of communication between the authorities and the citizens who participate of these initiatives and are also beneficiaries. Consequently, using platforms of e-governance conveys the commitment of central government to use technologies as communication tools for enhancement of governmental relationships and address the will of the governments toward inclusion of the citizenship in order to advance democratic expression, human dignity and autonomy, support economic development and encourage an efficient services delivery (Riley, 2001). Thus, CBO can contribute toward the processes of e-governance by promoting the use of ICT in their communities.

In this context, CBO in Peru are local voluntary non-profit groups which are represented by their community members engaged with the cause of common welfare. Since the first land invasion, CBO are based on people's involvement in decision making especially for legal issues. Later, the need of survival became a challenge in search for specific solutions such as water, sewage and electricity. Therefore, CBO assumed a function as direct representatives of community groups to establish communication with local

governments to acquire a negotiation force toward private companies for utilities and to convey information and opinions through their leaders about needs and demands related to settlement issues.

There is an important number of CBO existing in Manchay (163). According to surveys from 73 cases in Manchay, people feel proud of their neighbourhood and they are actively involved on the improvement of their living conditions as the highest percentage of participation is reflected in activities related to land regularization, infrastructure development and nutrition issues (Table 3).

Type of communication access	% of Population (n=73)
Computer with internet access	39
Computer no internet access	8
No computer / no internet access	53
Land line phone	57
Mobile phone	82
Radio	94
Don't have radio	6
Television	57
Satellite television	25
Don't have television	18

Table 3. Types of CBO in Manchay and percentage of participation. Source: by the authors.

CBO collective initiatives in Manchay have led to an autonomous and safe development. Despite of their limited access to education there is a strong concern from the community about modernity and facilitation of access to communication means for achieving social inclusion. For example, the National Program for food assistance (PRONAA) has recently implemented a website with support of the local government to attend the community of Manchay as few others. PRONAA deals with food security through a food distribution in poor areas. Since 1992, PRONAA has many channels of communication with society and CBO through the programme Glass of Milk (serving breakfast for children, women and elders in community centers) and Community Managed Kitchens, generating management committees open to the community. Since the website creation, these organizations have been working on its improvement for increasing the capacity of resolution of community engaged members in logistic and communication problems (PRONA, 2014). PRONAA intends to solve its procurement problems and make the process more transparent by given the number of transactions involved through online operation, publishing the bidding invitation list for products and services online and directly buying from small size producers. These centers are administrated by CBO representatives, who are switching their strategies and processes from the bureaucracy of paperwork to the modernity of ICT and electronic communication means.

The main role of CBO is to create access to marginalized groups, encouraging grass-roots in participation projects and community empowerment promoting training and supporting community activities (Sahley & Danziger, 1999). Literature shows that training for education is considered as important for sustaining local community participation (De Soto, 2000; Poerbo, 1992). CBO leaders need training in specific

areas: technical and social skills, organizing communities, conducting meetings and communicating with local authorities.

Business Type	Number of houses (n=16)
Large grocery store	3
Small grocery store	4
Internet, phone calls centers	6
Drugstore	1
Services (veterinarian, lawyer)	2

Table 4. Educational Background from households interviewed. Source: by the authors.

Results from surveys reflected that most people in Manchay who are involved or participated in any CBO, belong to the first generations of migrants. Therefore, most of them only reached elementary or high school. Still, they use ICT tools for communication and coordination activities with their community members, showing evidence of the overcoming of another barrier. On the interviews with 13 CBO leaders the majority reached elementary education; but only few of had access to technical training (Table 4).

E-governance and Social Media Network in Manchay

Social media network websites are achieving tremendous growth and communities, online community services and several groups are getting feed with ideas and opinions of citizens of their virtual communities all around the world. Access to global communication through internet connection has led to Manchay population the use of free web-based social media networks. The Community of Manchay created a group profile on Facebook[lxxii] which has more than 22 000 visits from 2012 and reminds active to date with a regular flow of posts about local community issues, events, social programs and medical campaigns (such as vaccination and specific diseases prevention). The creation of this social media network account is use to convey information about CBO projects, discussion groups, events and creation of socioeconomic development through business advertisement and services. Even more, has led the option to obtain information from the settlement that allowed the creation of points of interest and facilities in Google Maps such as churches, schools, markets, police stations, parks, health centers and among others promoting people to get together for pursuing their common interests. These network based applications are external to the e-government process in the platform provided by the municipality, but indicate openly the tendencies of the groups leading the community.

Future work and recommendations

The main difficult for incorporating Manchay and other squatter settlements into e-government processes is the unequal of conditions against urban areas well established in Lima. A starting point is to work from the local governments for achieving well-established communities starting from land tenure security toward facilitating access to ICT and promoting community participation. A trustful relationship between government and citizens facilitates coordination for making, implementation and compliance of policies. Workshops, training sessions and technical advice for communities reunited by common interests can increase the interest and confidence level in local governments but few can make for closing the digital divide which requires provision of infrastructure neglected by private companies.

Local governments are in need to strengthen their communication strategy in order to make citizens and community representatives' part of the decision making processes. ICT shown evidence of being a reliable source to supply, retrieve and disseminate information, transparency and experiences between CBO, authorities and citizenship.

CONCLUSION

This chapter explored from the source the community of Manchay in Peru and located the case of this community in the current social and political context.

Development in squatter settlements is actually a specific form of community participation, the success of which is determined by two key factors: first, the role of the local government and the tools they used to implement their strategies; and second, the complexity of the decision-making taking place at the core of the community participation process. Community participation is not easy to achieve but it is a key component as a strategy for resource mobilization toward implementation and use of e-governance tools. Without the involvement of the community in planning-decision making, improvement projects are not able to meet the needs and demands of the community in an effective and efficient way.

In the scenario of squatter settlements in Peru, there are two priority needs before implementing mechanisms of e-governance and expecting good results: first, to start thinking about other possibilities for facilitating the process of formalization of land tenure in order to promote self-business development and economic flow to satisfy the priorities of survival of these communities. Second, government and policy makers may consider analyzing new strategies for providing formal support to squatter settlements using infrastructure of ICT starting trials for online land registration, online businesses registration and promoting flow of information in a dialogue with the citizenship.

Collective initiatives from CBO are powerful on supporting governance structures making them stronger. For the purpose, there is evidence of the use of ICT through the official websites of municipalities and social media networks. These tools facilitate communication between CBO, citizens and local governments. The existence of CBO groups promotes communication with local governments recognizing their authority where its jurisdiction has been commonly neglected. Therefore, project leaders and policy makers interested in community participation need to dialogue with CBO representatives and establish clear processes focused on conveying the power of local representative leaders toward local interest.

Finally, what happen after land tenure? After squatter settlements are legally recognized, owners acquire rights over the land to get basic urban services and urban facilities to initiate the process of consolidation using ICT for communicating and organize with their community representatives for solutions to the local governments. This is a long process, where squatter dwellings owners claim for their rights over the land and provision of services using the e-government platform. The attempts from local governments to implement ICT as a tool to improve local community participation and e-governance had demonstrated that citizens are capable of using ICT to convey CBO initiatives toward reaching impact over community members. However, the case of Manchay has several limitations due to its recent implementation, but certainly leaves a blueprint for neighbors and communities in similar situation.

FOOT NOTES

[1] Facebook user: "Municipalidad Distrital de Pachacamac" (redirected to the official website of the Municipality of Pachacamac http://www.munipachacamac.gob.pe/

[1] COFOPRI official web site http://www.cofopri.gob.pe/ last visit August 2nd, 2014.

[1] Facebook user: "Manchay, Lima, Peru" (22,880 visits), last visit August 10th, 2014.

REFERENCES

Bhatnagar, S.C. & Bjorn-Andersen, N. (1990) *Information Technology in Developing Countries.* North, Holland, Amsterdam: Elsevier Science.

Butler, B. S. (2011) Membership size, communication activity, and sustainability: a resource based model of online social structures. *Information, Communication and Society,* 12, 1-23

Calderón, J. A. (2004). The formalization of property in Peru 2001-2002: the case of Lima. *Habitat International*, 28(2), 289-300.

Castells, M. (2000). Toward a sociology of the network society. *Contemporary sociology*, 29(5), 693-699.

Castells, M. (1999). Grassrooting the space of flows. *Urban Geography*, 20(4), 294-302.

CODESI (2014). *Comision de Desarrollo de la Sociedad de la Informacion.* Retrieved August 8, 2014 from http://www.codesi.gob.pe/

COFOPRI (2014). Estadístico: titulación por año. *Comisión de formalización de la propiedad informal.* Retrieved June 29, 2014, from http://www.cofopri.gob.pe/cifras/estadistico.aspx

De Soto, H. (2000). *The mystery of capital: why capitalism triumphs in the west and fails everywhere else*. New York: Basic Books.

De Souza, F.A.M. (2011). Perceived security of land tenure in recife. *Habitat International*, 25(2), 175-190.

Durand-Lasserve, A. (2006). Informal settlements and the millennium development goals: global policy debates on property ownership and security of tenure. *Global Urban Development*, 2(1), 1-15.

Gilbert, A. (2002). On the mystery of capital and the myths of Hernando de Soto: what difference does legal tile make? *International Development Planning Review*, 24 (1), 1-19.

Gomez, R., & Gould, E. (2010). The cool factor of public access to ICT: users' perceptions of trust in libraries, telecenters and cybercafés in developing countries. *Information Technology & People*, 23(3), 247-264.

Harris, R. (2001), Research partnerships to support rural communities in Malaysia with information and communication technologies. In J. Lazar (Ed.), *Managing IT/Community Partnerships in the 21st Century* (pp. 222-247). Hershey, PA: Idea Group Publishing.

Heeks, R. (2001). Understanding e-Governance for development. In i-Government Working Paper Series (Ed.), *Institute for Development Policy and Management* (paper No. 11) Manchester, U.K: University of Manchester.

INEI (2013) Compendio estadistico del Peru 2013. *Instituto Nacional de Estadistica e Infomatica, 1*, 21-29. Retrieved August 3, 2014 from http://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales

Kombe, W. J., & Kreibich, V. (2000). Reconciling informal and formal land management: an agenda for improving tenure security and urban governance in poor countries. *Habitat International*, 24(2), 231-240.

Marshall, S., Taylor , W., & Yu, X. (Ed.) (2003*), Closing the digital divide: Transforming regional economies and communities with information technology* . Westport CT, Greenwood Publishing.

Muraya, P. W. (2006). Failed top-down policies in housing: The cases of Nairobi and Santo Domingo. *Cities*, 23(2), 121-128.

Payne, G. (2001). Urban land tenure policy options: titles or rights? *Habitat International, 25(3),* 415-429.

Olórtegui, I. (2001, May). Informal settlers in Lima. In Workshop Paper, ESF/N-AERUS International Workshop, Leuven and Brussels, Belgium.

ONGEI (2014). *National Office of Electronic Government and Informatics, Peru.* Retrieved July 5, 2014 from www.ongei.gob.pe.

Poerbo, H. (1992). Government and land ownership cooperation: guided land development in Indonesia, conceptual approaches. *Trialog*, 32, 26-29.

PRONA (2014) *Programa Nacional de Asistencia Alimentaria*. Retrieved July 3, 2014 from http://www.midis.gob.pe/index.php/es/pronaa

RCP (2014*) Red Cientifica Peruana*. Retrieved August 6, 2014 from http://www.rcp.net.pe/historia.html

Riley, B. (2001). *Electronic Governance and Electronic Democracy: Living and Working: In The Connected World Vol 2*. Brisbane, Australia: Commonwealth Center for Electronic Governance.

Riofrío, G. (2003). Urban slums reports: the case of Lima, Peru. Understanding slums: case studies for the global report, 15.

Sahley, C., & Danziger, J. (1999). *Rising to the urban challenge? The roles, strategies and performance of NGOs in Lima, Peru*. United Kingdom: Intrac.

Sakay, C. (2012). *The generational self-help housing and the construction process towards the creation of a new city*. Unpublished master dissertation, University of Tsukuba, Japan.

Sakay, C., Sanoni, P., & Hanazato, T. (2011). Rural to urban squatter settlements: the micro model of generational self-help housing in Lima-Peru. Procedia Engineering, 21, 473-480.

Sakay, C., & Hanazato, T. (2011, September). *Self-help housing builders in squatter settlements: The case study of Manchay-Peru*. Paper presented at The 24th World Congress of Architecture, UIA, Tokyo, Japan.

Sanoni, P.(2012) Organizational network for delivery of public health care services in rural areas of Peru using information and communication technologies (ICT). *The Journal of International Public Policy*, The University of Tsukuba. 30, 101-138.

Sheng, Y. K. (1990). Community participation in low-income housing projects: problems and prospects. *Community Development Journal*, 25(1), 56-65.

Skeates, R. (1997). The infinite city. *City*, 2(8), 6-20.

UNCHS (1991). *Human settlements development through community participation.* Nairobi: United Nations Center for Human Settlements, Habitat.

UNDP (2003). *Human development report 2003, millennium development goals: a compact among nations to end human poverty*. New York. Oxford Press.

UN-Habitat (2007, April). *Sustainable urbanization: local action for urban poverty reduction, emphasis on finance and planning*. Presented at Twenty First Session of the Governing Council. UN-Habitat, Nairobi, Kenya.

World Bank (1998a). Project Appraisal Document, Report No.18245PE. *Peru - Urban Property Rights Project*, Washington D.C

World Bank (1998b). Project Information Document, No. PID6523. *Peru - Urban Property Rights Project*, Washington D.C.

Wheeler, J. O., Aoyama, Y., & Warf, B. (Ed.). (2000). *Cities in the telecommunications age: the fracturing of geographies*. London, Psychology Press.

The role of GIS in policy coordination in order to identify the extent of integration achieved in a strategic spatial planning context

Francis Kintu

University of the Witwatersrand, South Africa.

Abstract

In discourses of urban strategic spatial planning, terms such as 'policy coordination' and 'policy integration' are used in reference to policy making processes. Using key perspectives emanating from research, this chapter discusses the usage of GIS as a vehicle of policy coordination processes in an urban policy making context. In this respect a detailed analysis of policy coordination processes germane to strategic spatial planning processes is highlighted, followed by a description of how GIS enabled geovisualization in an e –governance context supports integration in spatial policy making processes.A description of GIS aided coordination of spatial policy in the context of strategic spatial planning in the City of Johannesburg is given as a tableau from which a determination of integration achievable is given. Key recommendations are adduced from facts presented and a conclusion given in the light of facts presented.

Keywords: Strategic spatial planning, policy coordination, integration, e-governance, Geographic Information systems, geovisualization.

INTRODUCTION

The advent of the 21st century has seen cities in developing countries grappling with myriad development challenges linked to unprecedented surges in urbanization such as providing access to quality services and the delivery of infrastructure services to urban denizens. In a bid to place cities on sustainable urban growth trajectories, urban local governments have adopted planning responses such as strategic spatial planning aimed at effecting urban regeneration, enabling economic growth and enhancing city competitiveness among other salient issues.

The implementation of strategic spatial planning embodies the embracing of a wide range of agendas and policies that need to be coordinated successfully in order to create quality urban spaces. In this respect, urban municipalities face immense challenges of coordinating multiple policies and agendas in ways that can deliver optimal socio-economic development in developing cities. It is to this end that urban local

government have introduced e governance or the application of Information and Technology (ICT) in various forms for purposes of enhancing the coordination of spatial policy in cities.

Deploying e-governance provides several innovative dimensions for enhancing urban local policy making. These dimensions aimed at enabling collaborative governance such as creating new opportunities to link agencies, sectors, and organizations in an urban policy making context provide opportunities for civic engagement in democratic processes in urban communities. In this context, Geographic Information System (GIS) provides a robust platform of support as a system that enhances the coordination of spatial policy by dint of capabilities such as spatial analysis and geovisualization.

This chapter describes the usage of GIS in policy coordination processes at the local level of planning in the city of Johannesburg. It gives a background of the value of integration in strategic spatial planning as well as elaborating on the value of GIS- aided geovisualization in a spatial policy making context. It ends with recommendations of further research derived from discussions of the main body and a conclusion.

BACKGROUND

Strategic spatial planning and policy coordination

The usage of strategic spatial planning as a tool of choice in transforming urban spaces lies in its long term planning, frameworks, principles and ideas of spatial transformation that aim to produce sustainable development and spatial quality in cities (Albrechts, 2004, Albrechts, 2006, Albrechts, 2009, Friedmann, 2004, Haughton, 2009, Healey, 1997, Healey, 2004, Todes, 2011, Van den Broeck, 2008, UNHABITAT, 2009). Strategic spatial planning is defined as 'a transformative and integrative, public sector-led, socio-spatial process, through which a vision, coherent actions and means for implementation are produced that shape and frame what a place is and what it might become' (Albrechts, 2006:1152).

Strategic spatial planning can also be defined as 'a social process through which a range of people in diverse institutional relations and positions come together to design plan making processes and develop contents and strategies for the management of spatial change' (Healey 1997: 5).These definitions of strategic spatial planning are laden with leitmotifs that connote processes of joint action and the coming together of stakeholders engaged in processes of shaping of spatial policy.

Inferred from these definitions are processes that provide a context of 'joint working together' or 'joint planning' in which stakeholders design spatial strategies. As such, strategic spatial planning is driven by the dynamics of 'working together', or of the 'joining up' of policy across vertical and horizontal scales of governance. A strategic spatial plan is a conglomerate of diverse policies and agendas of several 'ecologies of actors' (Evans 2002), that is brought to fruition by policy making processes that aim to transform the quality of urban spaces (Haughton, 2009, Van den Broeck, 2008, Vigar, 2009).

Coordination of policy across levels of governance is vital in the creation of strategic spatial planning agendas. Effective policy coordination is key to the attainment of development in cities such as: economic growth and competitiveness; economic and social cohesion; equality, social inclusion and urban regeneration; and the promotion of sustainable development and quality of life in cities (EC, 1998).

'Coherent policy making', 'policy coordination', and 'policy consistency' are all related concepts of integration (Geerlings and Stead, 2003, Stead and Geerlings, 2005) that describe activities of joint

planning across levels of governance. Policy coordination or integration defined as 'processes or actions of joining up, or working together between levels of government and across sectors in the pursuit of consensus' (Kintu, 2012), addresses issues of working together horizontally and vertically across sectors and levels in the pursuit of consensus.

Consensus is attained through the exchange of information and through deliberation and arguments that facilitate the fusion of decision makers' preferences and viewpoints. Policy coordination is about processes of forming consensus between stakeholders aim at adopting common policy position. The terms 'policy coordination', 'policy coherence' and 'policy consistency' mean the same as policy integration, or simply integration (Geerlings and Stead, 2003, Healey et al., 2006, Kidd, 2007, Meijers and Stead, 2004, Stead and Meijers, 2004). Levels of integration (Gadja, 2004) in this respect depend on levels of information shared, resources pooled between stakeholders and other variables as shown in the table below:

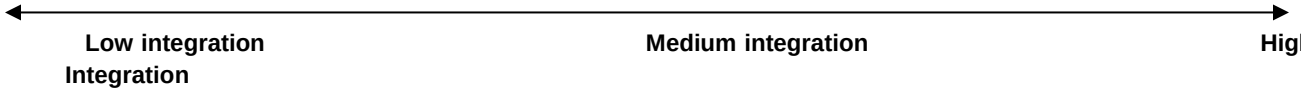


Figure 1: Levels of integration.Adapted from Himmelman (1992); Keast, Glasby et al (2009) and Gadja (2004).

The extent of integration achievable in spatial planning is an important variable in formulating spatial strategies regarding issues of where, how and when to deliver infrastructure (Hull, 2005, Morphet, 2009b, Morphet, 2009a, Morphet, 2011, Stead, 2003). Well-integrated policy in spatial frameworks influences the creation of quality cities (Coetzee, 2009, Dodson, 2009, Morphet, 2010) as opposed to poorly integrated or coordinated spatial policy that produces unsustainable urban outcomes (Hagans, 2011).

Processes of policy coordination in this context allude to issues of 'aligning of', or 'fitting into' of policy between other policies or strategies (Healey et al., 2006). It also refers to activities of 'co-aligning' with respect to issues of 'mutual adjustment' of a policy among other diverse strategies or policies. Coordination of policy also refers to issues of 'multilevel co-aligning' referring to activities of multi-level co-aligning of policy both vertically and horizontally (Healey et al., 2006).

An 'integration agenda' (Vigar, 2009:1572) that underpins strategic spatial planning consists of processes such as the aligning and co-aligning of diverse strategies and policy among diverse actors at different levels of government and sectors, as well as the fusion of diverse public and private sector policy domains in a territory or area (Counsell et al., 2006, Haughton, 2009, Schultze, 2003, Vigar, 2009). Policy coordination in this case requires the aligning and co-aligning of individual sector plans and policies such as transport, housing, energy and water among others.

The dynamics of coordinating policy vertically and horizontally involving various stakeholders engaged in co-producing a strategic spatial plan that embodies several viewpoints, visions and positions from several stakeholders (Albrechts, 2013; Healey, 1997; UN Habitat, 2009) presents a formidable challenge for urban local governments (Feiock, 2010, Post, 2004, Sellers and Hoffman-Martinot, 2007, Wheeler, 2000) Related challenges of policy making e.g. inadequate representative processes and difficulties in realizing consensus among several city agencies make innovation in policy coordination a cardinal issue (Nam and Pardo, 2011).

E governance, GIS and policy coordination

E governance is defined as the use of ICT applications in supporting local governance processes (Waema and Adera, 2011) or the use of appropriate technologies to enhance governmental relationships for advancing democratic expression as well as encouraging delivery of services among other issues (Riley, 2001). The rationale behind using e governance is to enable new outcomes such as new methods of organising government business and new systems for delivering services to the public.

Finger & Pecoud (2003) argue that the main outcomes of ICT's in e-governance processes relate to issues of policy transformation both below and above national levels of government. Policy transformation includes enhanced modes of policy making such as better engagement with communities in decision making processes as well as enhanced engagement with actors from different policy fields in joint decision making (Finger and Pécoud, 2003). In an urban local governance context, using ICT applications for policy making gains strategic value as innovative mechanisms of policy integration (Nam and Pardo, 2011).

Urban local governance processes in the South African 'developmental local government' context (RSA, 1998) consist mainly of the execution of development tasks with spatially related outcomes through Integrated Development Plans (IDP's) that provide infrastructure and services promote local economic development among other issues (Afesis, 2014, DBSA and CoGTA, 2011, RSA, 1996, RSA, 1998).

In this context, e- governance as an enhancer of local policy making through the mechanism of GIS, plays a valuable role in strategic spatial planning processes that involve issues of how, when and where to invest in infrastructure. GIS as a system that aids the processing, retrieval and display of spatial information through the capabilities of geo-spatial visualization facilitates collaborative decision making between multiple stakeholders in this context (Balram and Dragićević, 2006, Balram et al., 2009, Laurini, 2001).

GIS assisted data visualization or geovisualization (Andrienko et al., 2007, Dühr, 2006, MacEachren et al., 2004) in the form of 3D maps and 2D maps and globes among others[lxxiii] is key to processes of coordination of spatial policy. Visualization by way of interactive and shared visuals provides location-specific evidence that supports decision making processes such as the sharing of spatial perspectives and supporting map dialogues that combine different planning visions of sectors and negotiated solutions related to spatial challenges that aid in the forming of consensus (MacEachren and Brewer, 2004, MacEachren et al., 2003, MacEachren et al., 2004).

Geovisualization as a platform for facilitating 'visually enabled dialogue', and 'visually enabled argumentation' (MacEahren, 2005:7) between stakeholders, helps in engendering joint decision making processes aimed at achieving consensus e.g. helping to generating ideas when visuals are used to explore spatial issues; stimulating activities of negotiating and deliberation and in supporting synergy of stakeholders' opinions based on visual analysis (MacEachren et al., 2004, Malczewski, 2006b, Malczewski, 2006a).

In a city wide, collaborative e governance context where diverse stakeholders engage in the co-production of local spatial policy, geovisualization aids policy making processes in ways such as helping shape spatial discourses and framing spatial agendas via illustrated spatial policy options. It also aids in presenting evidence to support policy positions as well as help mediate conflict interests (Duhr, 2003, Dühr, 2006, Dühr and Müller, 2012, Faludi, 1996).

In a city e-governance context, the Integrated FUPOL model (Burkhardt et al., 2013, Sonntagbauer et al., 2013) showcases the value that ICT applications such as IT aided visualization add to policy making processes. The Integrated FUPOL model showcases how IT applications such as advanced visualization and community feedback platforms in a city e-governance milieu interface with stages of policy formulation thus enhancing policy making (Burkhardt et al., 2013).

The visual below shows ICT applications such as (visualization, database technologies, etc) and how they enhance policy making.

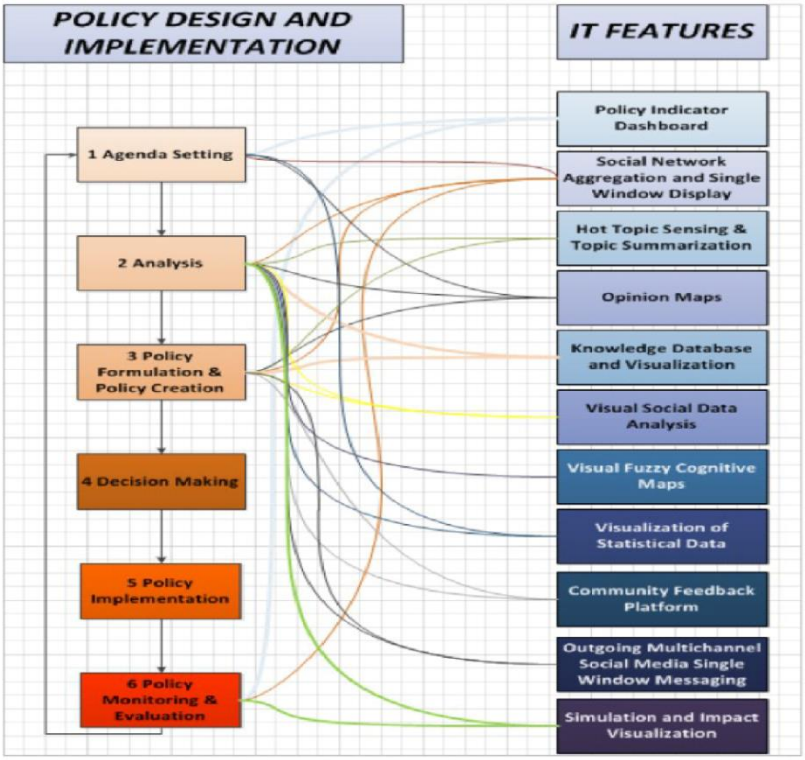


Figure 2: The FUPOL Integrated Model (Sonntagbauer et al., 2013).

Issues, controversies, problems

The City of Johannesburg study

Strategic spatial plans in the City of Johannesburg deliver infrastructure using Growth and Development Strategy plans, Integrated Development Plans (IDP's) and three year operational and capital budgets. These plans conform to processes of integrated development planning[lxxiv] that entail local government working with other levels of government in formulating an IDP[lxxv] that includes a spatial plan. These processes require extensive participatory processes between all stakeholders in identifying development priorities and formulating appropriate strategies.

Participatory processes in IDP processes are facilitated via IDP Representative Forums that consist of Stakeholder Structure and Ward Committee members such as members of the executive committee of the city council (MEC's), heads of departments and senior officials from municipal and government departments, people representing the rights of unorganised groups, resource people or advisors as well as

community representatives, ward councillors, ward committee members, and representatives from organised stakeholder groups (ETU, 2014). The IDP forum facilitates joint policy making in which members participate in all phases of integrated development planning as the table below shows:

Planning phase	Methods for Participation	Key outputs
Analysis	Community Meetings organised by the ward councillor Stakeholder Meetings Surveys and opinion polls (getting views on how people feel about a particular issue)	Assessment of existing level of development; Priority issues or problems; Information on causes of priority issues/problems; Information on available resources.
Strategies **Projects**	IDP Representative Forum Public Debates on what can work best in solving a problem Meetings with affected communities and stakeholders Representation of stakeholders on project subcommittees	The Vision; Objectives; Strategies; Identified Projects Performance indicators; Project outputs, targets, location; Project related activities & time schedule; Cost & budget estimates
Integration	IDP Representative Forum	5 -year financial plan; 5-year capital investment programme (CIP); Integrated Spatial Development framework; Integrated sectoral programme (LED, HIV, Poverty alleviation, gender equity etc); Consolidated monitoring/performance management system; Disaster management plan; Institutional plan; Reference to sector plans
Approval	Public Discussion and consultation with communities and stakeholders	The output of this phase is an approved IDP for the municipality
Monitoring and Implementation	IDP Representative Forum	

Figure 3: IDP phases and related participatory processes (DWAF, 2004).

Crucially, the public gets to participate in issues of infrastructure delivery and budgeting in IDP representative forums. Other platforms for participation are izimbizos, mayoral roadshows as well as special forums and project specific participatory forums.

Notwithstanding the existence of participatory platforms, their effectiveness in addressing community needs is largely unresponsive (Leary and McCarthy, 2013, Tissington, 2012, Van Donk, 2012, Winkler, 2011). This is due to issues such as ineffectual, powerless and corrupt IDP forums, institutional politics, the lack of trust between citizens and their elected representatives and poor communication and accountability relationships between elected representatives and communities (CoGTA, 2010; Winkler,

2011). The disjuncture between spatial plans and the reality of development needs of urban communities can be attributed to weaknesses in participatory processes.

The status of E governance in Johannesburg

E governance enhances integrated development planning processes by way of the Integrated Development Planning Nerve Centre (IDPNC). This internet-based information system promotes the flow of planning, programme and project-based information across levels of government in order to align strategic planning across levels of government, support inter-governmental spatial coordination with regard to investment decisions; and strengthening the link between local, provincial and national priorities and objectives, among other issues[lxxvi] (CoJ, 2009, DWAF, 2004).

E -governance enabled participation in IDP processes is not widespread and is still at the nascent stage of development (LINK, 2012). It consists of e-mail communication, website connectivity for IDP document downloads, a municipal Facebook page, and a database that logs all community responses about delivery issues that are channelled to relevant municipal sectors (COJ, 2006).

The major reason behind the paucity of IT enabled policy making is largely due to the costs of internet connectivity that limits the usage of the internet. In this respect, 15.3% of households in Johannesburg have access to the internet, as compared to 79% of households with access to mobile telephony (SSA, 2012). The disparity of lack of internet access in many communities as compared to the high numbers of households with access to mobile telephony has propelled mobile telephony as the premier platform of internet access (Goldstuck, 2012). In a bid to address deficiencies of internet access, the City of Johannesburg is rolling out broadband infrastructure with the aim of providing affordable internet access as part of the Johannesburg Broadband Project (JBNP) (CoJ, 2011, GautengOnline, 2014).

GIS as an e governance mechanism enhances spatial planning in the city by way of the Capital Investment Management System (CIMS). As an infrastructure database management tool with GIS functionality, CIMS coordinates infrastructure delivery in line with the Growth and Management Strategy that delineates priority areas of need in the city and the City's capital budget (Magni, 2011). The identification and prioritization of capital projects in CIMS processes occur within the ambit of city planning processes that include public input as a key part of policy making as the visual below shows:

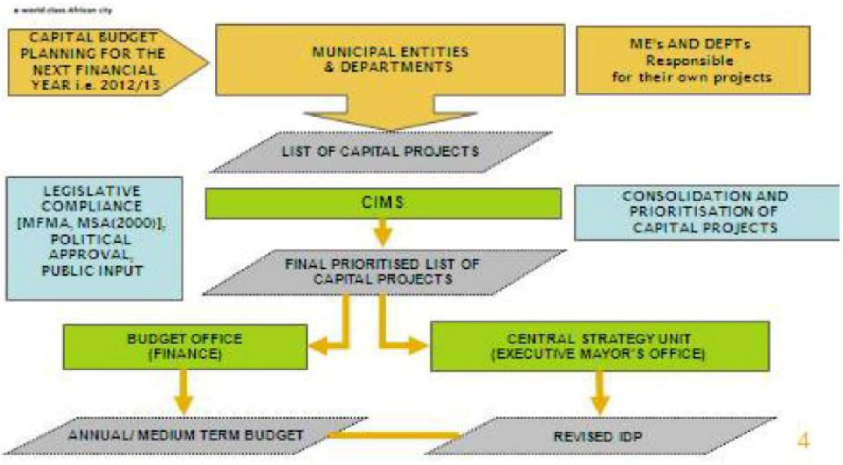


Figure 4: Capital Investment Management processes and stakeholder participation (Magni, 2011).

The Capital Investment Management System's components such as the database function, the prioritisation function, the report generation function, the tracking function and the administrative function facilitate infrastructure delivery coordination projects through various processes. These processes are: the capture of sectors and municipal entity capital projects with respect to priorities of spatial development and the budget; the alignment of 27 municipal sector/municipal entity capital needs with prioritized areas of need and impact of infrastructure investment through the usage of geovisualization processes; the generation of reports according to ward location as used by sectors and MOE's; ascertaining the progress of projects on the system as well as management issues of the CIMS (Magni, 2011).

CIMS has had relative success in coordinating infrastructure delivery in the city (Magni, 2011). However, issues of misalignment of policy such as during 2007 - 2012, when infrastructure investment was not directed to prioritized areas in the city such as public transport areas as well as more spending directed at less deserving areas in the city point to deficiencies in policy integration (Laldaparsad, 2011).

Even less certain are the integrated outcomes of CIMS aided infrastructure delivery in terms of 'transformative outcomes' in urban communities as tangible results of effective policy coordination (Harrison et al., 2008). Persistent deficiencies in infrastructure delivery such as housing, water and sanitation that still plague urban communities in Johannesburg point to deficits in policy integration in issues related to infrastructure delivery that are manifested in several service delivery protests[lxxvii].

Solutions and recommendations

Effective strategic spatial planning resonates with robust processes of policy making between stakeholders engaged in designing sustainable cities. The quality of a strategic spatial plan is predicated on the co-production of spatial policy between local government and urban communities supported by pro-active, participatory processes (Albrechts 2012). The experience of spatial policy making in Johannesburg depicts issues of 'governance deficits' (Van Donk, 2012:7) where weaknesses in participation processes in spatial planning have affected the tenor of spatial policy making. Weaknesses in spatial policy making in turn affect the quality of strategic spatial plans in delivering infrastructure in urban communities.

E- governance has a critical role to play in this situation – by taking centre stage as a key adjunct to existing participatory processes with the aim of engendering more opportunities of engagement that can stimulate active citizenship in policy making. This will necessitate the scaling up of e governance, as a key enabler of IT enabled participatory processes in communities, by extending the electronic footprint of ICT usage in participatory processes aimed at deepening citizens' involvement in spatial policy making.

Extending the electronic footprint of IT mediated participation requires strategic shifts in local government policy and regulation aimed at creating create an enabling macro-environment that can supports increases in universal internet access as well as promoting greater e – inclusion in urban communities. Based on the fact that there is a high correlation between online citizen participation and the percentage of Internet users and mobile phone users (Schatteman et al., 2012), the City of Johannesburg local government working with Gauteng province needs to ensure the provision of affordable internet plus ensuring cheap mobile call charges to facilitate easier internet access. In addition, the city needs to

disburse more funding for the provision of public internet facilities for citizens who lack access to fixed line internet.

Scaling up of e governance has implications for the GIS enhanced Capital Investment Infrastructure Management System. In this respect, CIMS processes of infrastructure coordination need to be extended to accommodate decision making processes that can use local spatial knowledge. Given the value of spatial data in policy making, integrating local spatial knowledge in CIMS processes of infrastructure coordination via the use of the internet, the web, and mobile telephony known as Participatory GIS can expand CIMS functionality.

The inclusion of local spatial knowledge in terms of user generated content or Volunteered Geographic Information (VGI) in planning helps in reaching communities that are hard to reach using traditional participatory methods (Brown and Kyttä, 2014, Meng and Malczewski, 2010). Using PPGIS is predicated on extent of internet access and cheap cell phone mobile charges that facilitate easier communication. As earlier alluded to, policy must target universal access of internet in urban communities in this respect.

Integration of local spatial knowledge in spatial planning operations needs radical changes in the City's Enterprise GIS operational standards[lxxviii] that must be adapted to allow the usage of this data in CIMS processes. Secondly, changes will be needed in the City IT governance framework, to allow integration of Open Source Software that provides support for local spatial knowledge or user generated content in City IT business processes, as well as retrofitting City websites with mobile web portals that provide access to mobile services and content using SMS, and other channels.

Lastly, City IT planning and governance must consider the development and usage of web content in the local languages that are used in urban communities such as Zulu, Sepedi, IsiXhosa and Sotho to facilitate greater interactivity between municipal websites and communities. Web content in English excludes those in urban communities who are not literate in English but can speak local dialects.

Future research or operational directions

The paucity of research regarding how PPGIS can be creatively adapted to operate in a South African urban context in relation to enhancing participatory policy making points to the need for research in this area. How best PPGIS tools, methods and processes can work with respect to the usage of Volunteered Geographic Information (VGI) in local spatial planning needs to be documented for purposes of informing and enriching e governance research aimed at providing solutions for policy making. Given the successes of PPGIS in other developing country contexts (Baud et al., 2013, El Nabbouta et al., 2007) there are substantial grounds for conducting PPGIS related research that aims to inform local spatial policy making.

The rapid increases in mobile telephony usage as the prime mode of internet access in urban communities in Johannesburg points to the potential of exploiting mobile government (m- government) as a platform of facilitating participatory processes in spatial policy making. Research is needed to determine how best m – government can be deployed as a communication platform in integrated development planning processes, by looking at issues such as what national strategies need to be developed for its implementation, what policies are needed to facilitate its operations as well as appropriate technology platforms that can support its usage between municipalities and urban communities.

CONCLUSION

There is an urgent need to strengthen integration of spatial policy in ways that can result into transformative outcomes of urban communities. With spatial policy making bereft of effective participatory processes, extending IT enabled participation is a key that can unlock opportunities of better community participation and engagement in spatial policy making. There is need for bold and persistent action from local government in terms of radical shifts in the policy and regulation which can strengthen and extend e governance processes as vital adjuncts to existing participatory processes in Johannesburg.

Bold and persistent action is also needed in developing and implementing other e governance related vehicles such as mobile government (m-government) as ways that can stimulate active citizenship and engagement in spatial policy making. This will ensure the active engagement of urban communities that cannot be accessed by traditional means of participation in spatial policy making. This will help consolidate processes of spatial policy making in ways that will enrich the horizontal integration of spatial policy in the City of Johannesburg.

BIBLIOGRAPHY

AFESIS 2014. Let us have better co-ordination of inter-governmental relations *http://www.afesis.org.za/index.php/local-governance/93-local-governance-articles/571-let-us-have-better-co-ordination-of-inter-governmental-relations. Accessed July, 09, 2014.* Pretoria: Afesis-corplan.

ALBRECHTS, L. 2004. Strategic (spatial) planning reexamined. *Environment and planning B,* 31**,** 743-758.

ALBRECHTS, L. 2006. Shifts in strategic spatial planning? Some evidence from Europe and Australia. *Environment and Planning A,* 38**,** 1149.

ALBRECHTS, L. 2009. Strategic Spatial Planning Revisited Experiences from Europe. *3. BÖLGESEL KALKINMA VE YÖNETİŞİM SEMPOZYUMU***,** 61.

ANDRIENKO, G., ANDRIENKO, N., JANKOWSKI, P., KEIM, D., KRAAK, M. J., MACEACHREN, A. & WROBEL, S. 2007. Geovisual analytics for spatial decision support: Setting the research agenda. *International Journal of Geographical Information Science,* 21**,** 839-857.

BALRAM, S. & DRAGIĆEVIĆ, S. 2006. *Collaborative geographic information systems,* Igi Global.

BALRAM, S., DRAGICEVIC, S. & FEICK, R. 2009. Collaborative GIS for spatial decision support and visualization. *Journal of Environmental Management,* 90**,** 1963-1965.

BAUD, I., SCOTT, D., PFEFFER, K., SYDENSTRICKER-NJ, DENIS, E., CONSUELO, L. & M, M. 2013. Spatial Knowledge Management in Urban Local Government: E-Governance in India, Brazil, South Africa and Peru.

BROWN, G. & KYTTÄ, M. 2014. Key issues and research priorities for public participation GIS (PPGIS): A synthesis based on empirical research. *Applied geography,* 46**,** 122-136.

BURKHARDT, D., NAZEMI, K., SONNTAGBAUER, P., SONNTAGBAUER, S. & KOHLHAMMER, J. Interactive Visualizations in the Process of Policy Modelling. EGOV/ePart Ongoing Research, 2013. 104-115.

COETZEE, J. 2009. Theory of Strategic and Integrated Development Planning. *In:* PRETORIA, U. O. (ed.). Pretoria.

COJ 2006. Integrated Development Plan 2006 - 2011. City of Johannesburg Metro Municipality.

COJ 2009. Assesment of economic projects and programmes in other spheres of government and adjacent municipalities to determine the possibility of developing synergies with the CoJ. . Johannesburg: City of Johannesburg Metro Municipality

COJ 2011. Integrated Development Plan 2011 - 2016. Johannesburg: City of Johannesburg Metro Municipality

COUNSELL, D., ALLMENDINGER, P., HAUGHTON, G. & VIGAR, G. 2006. Integrated'spatial planning-is it living up to expectations? *TOWN AND COUNTRY PLANNING-LONDON-TOWN AND COUNTRY PLANNING ASSOCIATION-*, 75**,** 243.

DBSA & COGTA 2011. The Municipal Infrastructure Investment Framework (MIIF 7) for South Africa: Round 7 (2009 – 2010): A capital investment perspective. Midrand: Development Bank of South Africa.

DODSON, J. 2009. The 'infrastructure turn'in Australian metropolitan spatial planning. *International planning studies,* 14**,** 109-123.

DUHR, S. 2003. Illustrating spatial policies in Europe. *European Planning Studies,* 11**,** 929-948.

DÜHR, S. 2006. *The visual language of spatial planning: exploring cartographic representations for spatial planning in Europe*, Routledge.

DÜHR, S. & MÜLLER, A. 2012. The Role of Spatial Data and Spatial Information in Strategic Spatial Planning. *Regional Studies,* 46**,** 423-428.

DWAF 2004. Water Toolkit Output 4: an overview of the IDP process. Pretoria: Department of Water Affairs and Forestry.

EC 1998. Sustainable Urban Development in the European Union: a Framework for Action, Communication from the Commission Brussels: Commission of the European Communities.

EL NABBOUTA, K., BUCHROITHNERA, M. & SLIUZASB, R. 2007. A new visualization tool for participatory urban planning: the case of Tripoli, Lebanon. *Global Change Issues in Developing and Emerging Countries: Proceedings of the 2nd Göttingen GIS and Remote Sensing Days 2006,* . Göttingen, Germany.

ETU 2014. Integrated Development Planning for Local Government. Education and Training Unit.

FALUDI, A. 1996. Framing with images. *Environment and planning B: Planning and Design,* 23**,** 93-108.

FEIOCK, R. C. 2010. *Metropolitan governance: Conflict, competition, and cooperation*, Georgetown University Press.

FINGER, M. & PÉCOUD, G. 2003. From e-Government to e-Governance? Towards a model of e-Governance. *Electronic Journal of e-Government,* 1**,** 1-10.

FRIEDMANN, J. 2004. Strategic spatial planning and the longer range. *Planning Theory & Practice,* 5**,** 49-67.

GADJA, R. 2004. Utilizing Collaboration Theory to Evaluate Strategic Alliances. *American Journal of Evaluation,* 25**,** 65-77.

GAUTENGONLINE 2014. Johannesburg residents get free Wi-Fi access Gauteng Provincial Government.

GEERLINGS, H. & STEAD, D. 2003. The integration of land use planning, transport and environment in European policy & research. *Transport Policy,* 10**,** 187-196.

GOLDSTUCK 2012. Internet Access in South Africa 2012. Johannesburg: World Wide Work.

HAGANS, C. 2011. *Livelihoods, Location & Public Transport:Opportunities for Poverty Reduction and Risks of Splintering Urbanism in Nairobi's Spatial Planning.* MSc Urban Development Planning, University College London.

HARRISON, P., TODES, A. & WATSON, V. 2008. *Planning and transformation: Learning from the post-apartheid experience,* Routledge.

HAUGHTON, G. 2009. *The New Spatial Planning*, Routledge.

HEALEY, P. 1997. *Making strategic spatial plans: innovation in Europe,* Routledge.

HEALEY, P. 2004. The Treatment of Space and Place in the New Strategic Spatial Planning in Europe. *International Journal of Urban and Regional Research,* 28**,** 45-67.

HEALEY, P., TEWDWR-JONES, M. & ALLMENDINGER, P. 2006. Territory, integration and spatial planning. *Territory, identity and spatial planning: Spatial governance in a fragmented nation.*

HULL, A. 2005. Integrated transport planning in the UK: From concept to reality. *Journal of transport geography,* 13**,** 318-328.

KIDD, S. 2007. Towards a framework of integration in spatial planning: an exploration from a health perspective. *Planning Theory & Practice,* 8**,** 161-181.

KINTU, F. 2012. Enhanced spatial planning through intra-governmental electronic information sharing. Johannesburg: University of the Witwatersrand

LALDAPARSAD, S. 2011. The reshaping of urban structure in South Africa through municipal capital investment: Evidence from 3 municipalities. *In:* RESEARCH, E. P. (ed.). Johannesburg: Statistics South Africa.

LAURINI, R. 2001. *Information systems for urban planning: a hypermedia cooperative approach,* CRC Press.

LEARY, M. E. & MCCARTHY, J. 2013. *Companion to Urban Regeneration*, Routledge.

MACEACHREN, A. M. & BREWER, I. 2004. Developing a conceptual framework for visually-enabled geocollaboration. *International Journal of Geographical Information Science,* 18**,** 1-34.

MACEACHREN, A. M., BREWER, I., CAI, G. & CHEN, J. Visually enabled geocollaboration to support data exploration and decision-making. Proceedings of the 21st International Cartographic Conference, Durban, South Africa, 2003. 10-16.

MACEACHREN, A. M., GAHEGAN, M., PIKE, W., BREWER, I., CAI, G., LENGERICH, E. & HARDISTRY, F. 2004. Geovisualization for knowledge construction and decision support. *Computer Graphics and Applications, IEEE,* 24**,** 13-17.

MAGNI, P. 2011. *Strategic Spatial Planning's role in guiding infrastructure delivery in a metropolitan municipality context: The case of Johannesburg.* M. Phil Infrastructure Design and Management Mini - Dissertation, University of Cape Town.

MALCZEWSKI, J. 2006a. Decision Analysis for Collaborative GIS. *Collaborative geographic information systems***,** 167.

MALCZEWSKI, J. 2006b. GIS-based multicriteria decision analysis: a survey of the literature. *International Journal of Geographical Information Science,* 20**,** 703-726.

MEIJERS, E. & STEAD, D. 2004. Policy integration: what does it mean and how can it be achieved? A multi-disciplinary review. Delft University of Technology.

MENG, Y. & MALCZEWSKI, J. 2010. Web-PPGIS usability and public engagement: a case study in Canmore, Alberta, Canada. *URISA Journal,* 22**,** 55.

MORPHET, J. 2009a. Local integrated spatial planning–the changing role in England. *Town Planning Review,* 80**,** 393-414.

MORPHET, J. 2009b. A Steps Approach to Infrastructure Planning and Delivery for Local Strategic Partnerships and Local Authorities.

MORPHET, J. 2010. *Effective practice in spatial planning,* London, Routledge.

MORPHET, J. 2011. Delivering infrastructure through spatial planning: The multi-scalar approach in the UK. *Local Economy,* 26**,** 285-293.

NAM, T. & PARDO, T. A. Smart city as urban innovation: Focusing on management, policy, and context. Proceedings of the 5th International Conference on Theory and Practice of Electronic Governance, 2011. ACM, 185-194.

POST, S. 2004. Metropolitan area governance and institutional collective action. *Metropolitan governance: Conflict, competition, and cooperation***,** 67-92.

RILEY, T. B. 2001. Electronic Governance in Context. *Electronic Governance and Electronic Democracy: Living and Working in the Connected World.*: Commonwealth Centre for Electronic Governance.

RSA 1996. The Constitution of the Republic of South Africa, Act No. 108 *In:* PRESIDENCY (ed.). Pretoria: Government Printer.

RSA 1998. The White Paper on Local Government. *In:* AFFAIRS, D. O. C. D. A. P. (ed.). Pretoria: Government Printer.

SCHATTEMAN, A., MOHAMMED-SPIGNER, D. & POLUSE, G. 2012. Citizen Participation through Municipal Websites: A Global Scorecard. *Active Citizen Participation in E-government: A Global Perspective***,** 403.

SCHULTZE, C. J. 2003. Cities and EU governance: policy-takers or policy-makers? *Regional & Federal Studies,* 13**,** 121-147.

SELLERS, J. & HOFFMAN-MARTINOT, V. 2007. Metropolitan governance. *decentralization and Local democracy in the World. First Global Report 2007*.

SONNTAGBAUER, P., NEOPHYTOU, H. & CHRYSOSTOMOU, G. 2013. FUPOL: A novel approach to policy modeling, data extraction and simulation. *Digital Governance: From local data to European policies.*

STEAD, D. 2003. Transport and land-use planning policy: really joined up? *International Social Science Journal,* 55**,** 333-347.

STEAD, D. & GEERLINGS, H. 2005. Integrating transport, land use planning, and environment policy. *Innovation: The European Journal of Social Science Research,* 18**,** 443-453.

STEAD, D. & MEIJERS, E. Policy integration in practice: some experiences of integrating transport, land-use planning and environmental policies in local government. Berlin: 2004 Berlin Conference on the Human Dimensions of Global Environmental Change: Greening of Policies-Interlinkages and Policy Integration, 2004.

TISSINGTON, K. (ed.) 2012. *Towards greater community participation in informal settlement upgrading: A case study from Slovo Park, Johannesburg,* Pretoria: GGLN.

TODES, A. 2011. Urban growth and strategic spatial planning in Johannesburg, South Africa. *Cities*.

UNHABITAT 2009. Turning Spaces into Places. Nairobi, Kenya: UN HABITAT (Municipal Spatial Planning Support Programme (MuSPP).

VAN DEN BROECK, J. Strategic Spatial Planning and Strategic Projects. A transformative practice. 44th ISOCARP Congress, 2008.

VAN DONK, M. 2012. Tackling the 'governance deficit'to reinvigorate participatory local governance. *In:* (GGLN), G. G. L. N. (ed.) *Putting Participation at the Heart of Development//Putting Development at the Heart of Participation. Cape Town: GGLN and Isandla Institute.* Cape Town: Isandla Institute.

VIGAR, G. 2009. Towards an integrated spatial planning. *European Planning Studies,* 17**,** 1571-1590.

WAEMA, T. M. & ADERA, E. O. 2011. *Local governance and ICTs in Africa: case studies and guidelines for implementation and evaluation*, IDRC.

WHEELER, S. M. 2000. Planning for metropolitan sustainability. *Journal of Planning Education and Research,* 20**,** 133-145.

WINKLER, T. 2011. Retracking Johannesburg Spaces for Participation and Policy Making. *Journal of Planning Education and Research,* 31**,** 258-271.

Façade Improvement through Public Participation in *South Salsabil* District of Tehran

Sarah Ferdowsi, Elgar Kamjoo, Mina Amani

ReUrbs Laboratory /Tehran/ Iran

Abstract

Tehran is the capital city of the Islamic Republic of Iran. Over the past several decades, the city has drastically grown into megacity of 10 million inhabitants causing a huge demand for new houses and commercial spaces. The increasing demand has resulted in a corresponding construction market that has grown without much care about the aesthetic, environmental and cultural requirements due to inadequate planning and control. The market driven shapes and material composition of building façades has resulted into a visual demonstration of greatly divers and non-harmonised shapes and forms. Lack of public views is obvious. This research has tried to pilot how public participation can be engaged through the electronic means of communication for bringing taste and harmony to building façades in Tehran.

Keyword: Tehran, façade, public participation,

INTRODUCTION

There is no controversy about the importance of aesthetic dimension of urban views and its impact on welfare of inhabitants. Sight pollution, optic pollution, lack of harmony in building frontages and sidewalks inflict adverse impact on the mental and physical health of citizens. Moreover, beautification projects are known to be an important player in economic rehabilitation of neighborhoods. In astatically sound and dynamic urban environments crime, unruly behavior and other kinds of social disorder are low and the opportunities for individual and social growth emerge remarkably.

The stability of covering materials is another factor in safety and durability of buildings. A sustainable façade is the result of taking into consideration factors like climate, environment, energy consumption, appropriate use of daylight, proper choice of material and coloring. Notwithstanding the efforts and the progresses made, the earthquake proneness and climate conditions have not been adequately considered as determining factors in the architectural design and construction of buildings in Tehran. Unprofessional and inconsiderate use of glass, composite material and stone are obvious manifestations of unsustainable construction work in the city. The horizontal building line, the harmony of the building façades with that of adjacent buildings, and with the street and the rest of the neighborhood, the role of trees and green spaces around buildings, the form and accessibility of main entrances and parking lots, the needs of the disabled and the elderly are among the factors influencing the beauty, sustainability of cities and the quality of lives of citizens.

The economic growth of Tehran and the subsequent influx of migrants into the city have increased the need for housing. Small and large investors and constructors unilaterally decide on the shapes and forms of houses thus creating a chaotic situation in building façades. Lack of solid legal controls, applying unprofessional designs, the build-and-sell approach to mass production of housing, limited availability of appropriate construction material and the low level of knowledge, awareness and the economic constraints of ordinary customers have contributed to the chaotic situation that prevails in the design of buildings facades in Tehran. The view of buildings in Tehran displays an assorted combination of styles and types that has nothing to do with the historical entity of the city.

It is obvious that the rules that are set by municipalities and city councils play a crucial role in giving system and orientation to cities. Some six years ago, Tehran Municipality approved parts of a framework legislation according to which building facades, particularly in building higher than 4 stories, were to be in conformity with the seismic resistance codes to ensure sustainability of the city. Subsequently, the first "façade code" was approved by a professional committee of high profile architects, city planners and authorities in the summer of 2013. For the sake of giving system and beauty to the city, the "mandatory façade design permission" was approved recently. Securing façade approval will become a prerequisite for issuance of a construction permit as of March 2015.

The overall view of a city of the size of Tehran cannot be improved in a short period of time. Harmonization, systematization, and revitalization of the architectural identity of this city will take time. Using the available legal and professional potentials, and more importantly, public participation, will help this happen faster, easier and with a better quality. If the citizens become educated and sensitized about the visual beauty of their cities and individual buildings residences therein, they will become the best supporters of beautification, harmonization and development programs. Public participation must be used as a measure of successful implementation of beautification projects.

Citizen awareness raising and sensitization is the first step in improvement of urban spaces. This participation should be measured and ensured based on the level of satisfaction of ordinary citizens and professionals in all stages of construction and use of buildings.

In view of the above, the current research has been designed to analyze the potentials for furthering public participation with an ultimate aim to enhance the beauty of the urban sights in Tehran. This will have to be carried out by using transparent and well informed processes.

The first e-governance action plan was prepared by the country's planning authority in 2002 and approved by the Supreme Administrative Council in the same year. The Action Plan called for (i) automation of admin procedures (office procedures, paperless environment, human resource management, financial systems, etc.); (ii) application of IT to re-engineer agency-specific procedures; (iii) all government agencies to create their own websites; (iv) creation of portals to ensure citizen's access to electronic information; and (v) provision of required training to government employees. The first e-governance exhibition was held in December 2003. [Ashrafologhalaei]

In 2003, the Parliament allocated a budget equivalent to $ 100 million for development of ICT infrastructure in the public admin sector. The programme included a number of projects in the areas of e-government, e-commerce, e-banking, e-learning and e-health. [Haghighi et al]

The five thrusts of e-Government in Iran are "(i) Increasing government efficiency and effectiveness, (ii) Providing convenient access for all, (iii) Improving public services, (iv) using IT and

Telecommunications to build new capabilities and capacities, and (v) Promoting social welfare, awareness and knowledge in the society." [Rezazadeh]

A survey published in 2011 suggest that although the level of client satisfaction of the delivery, diversity and accessibility of digital information is higher than average, customers are not satisfied with the capacity and competency of the staff of ICT offices in general. [Yaghoubi et al]. Electronic banking, and municipal services are mentioned to be among the most successful e-governance services.

Organizational and political barriers as well as financial resources, technological shortcomings, culture and education and legislative frameworks have been pointed out as major barriers to hinder appropriate development of electronic governance systems.

THE DEVELOPMENT HISTORY OF TEHRAN

Tehran is the capital city of the Islamic Republic of Iran, a megalopolis with some 10 million inhabitants and the largest administrative and commercial hub of the country.

Until 1571 Tehran was a rather small village of Rey district in the outskirts of the Alborz Mountain Range. Historically, the evolution of Tehran into its current megacity status can be divided into three main periods – before the Constitutional Revolution of 1906, after the Islamic Revolution of 1979, and the period between those two revolutions.

In 1788 Tehran was declared as the country's capital city under Aghamohammad, the founder of Qajar Dynasty, despite the fact that the city lacked the urban stature and infrastructure that existed in other larger and older cities of the country.

Tehran had to gradually open the doors to the changes caused by the introduction of industries and the new business systems such as commercial banks -the city had to grow bigger beyond the walls around it particularly northward. In those times the city was usually managed by military generals appointed by the King as the governor with unrestricted authorities and prerogative except for judiciary responsibilities that were discharged by religious leaders.

With the 1906 Constitutional Revolution came a strong wave of eager demands to establish the rule of law in the country. In 1907, the First Parliament passed the Baladiyeh (municipal) Act that provided for the establishment of modern municipalities. According to that Act, each city was to be run by a municipality under the control of a council of elected representatives (Mozayeni, 1995). The council members were elected for a four-year term and the council chairs, who carried the traditional title of kalantar (chief officer), was also in charge of the municipality; equivalent to what is called a mayor nowadays. (Mohammadi, 2010). The aim was declared "to protect the interests of cities and to respond to the needs of the citizens" (Madanipour, 1998).

In 1930, this Municipal Act was replaced by another instrument, which recalled the relative autonomy of municipalities and turned them into local agencies of the central government.

Generally the influence of the Constitutional Revolution changed the dynamics of urban areas across the country. The Constitutional Revolution could be seen as the result of an unseen but intrinsic conflict between urban and rural populations, the latter having always been the main supporter of dictator monarchies under the local ruling of tribal leaders.

For the first time the urban areas and particularly the Capital became the centre of public protests and revolutionary activities.

The process of modernisation took momentum with the passage of time. New urban features like squares, plazas, broad streets and city parks emerged based on the modes taken from European cities and the traditional building façades were altered to resemble the western style. By the beginning of the second half of the 20th Century, Tehran was already a rather large city with many of the elements that are characteristic to an urban enclave. (Kiani,2002) The approval of the first urban plan of Tehran in 1970 further stimulated this process of change.

The city development after two decades of rapid growth came to a halt in the aftermath of the 1979 Islamic Revolution that was followed by the eight-year imposed war with the neighbouring Iraq. However the participatory councils were further consolidated in accordance with religious concepts. The new revolutionary government opted for a complete set of Islamic councils at all levels from villages and rural districts to towns, cities, counties, and provinces. However, the councils mostly remained non-functional until 1998. The Municipal Act went through consecutive amendments in 1986, 1991, and 1994 (Mohamadi, 2010).

The first "Tehran Comprehensive Plan" of 1970 provided for expansion of the city towards its western suburbs. The plan was however interrupted by the revolution. The post revolution Comprehensive Plans of 1991 and 2006 tried to limit the expansion of Tehran, but all in vein. The failure was caused by a series of factors amongst them were the heavy concentration of economic resources and opportunities in the capital city.

The population of Tehran grew drastically by immigration of people from rural areas and other cities in the last two decades, and the city borders were expanded further and further attracting more and more people.

Year	1956	1966	1976	1986	1996	2006
Population	1.560.000	2.719.000	4.530.000	6.042.000	6.759.000	7.798.000

Table 1. The population of Tehran 1956-2006

ARCHITECTURAL TEXTURE AND VIEW OF TEHRAN

As mentioned before, Tehran has experienced an extremely rapid growth. A huge influx of migrants has flooded the city in search of income, jobs, opportunities, better access to educational and health services, etc. The corresponding demand for urban services has been huge, particularly for additional housing facilities. The need for new houses has created a significantly vast and highly competitive market. The process of building construction has outpaced, by far, the legislation development processes. This competition, which in residential sectors of many parts of the city is running in a multi-neighborhood scale, has resulted in the creation and introduction of bizarre building shapes and styles. The competition is actually between construction teams of business people that operate in each neighborhood. Mostly, these firms are ensembles of profit seeking people who normally lack any relevant academic education and technical expertise. The main thrust of these firms is to locate old buildings (normally of one or two

stories) and enter in contract with the landlord to replace the old building with a multi-story apartment block. Once built, the ownership of the new apartments will be shared between the two parties.

Each constructor applies its own taste and preferences derived by their intention to maximize the marketability of the newly built apartments through cutting (sometimes the essential) costs and introducing eye-catching outward building covers. More often than not, this results in buildings that are environmentally unfit, non-user friendly, unsafe, and strange looking.

The reasons behind this undesirable situation can be summarized as follows:

- Highly profit-minded, competitive and unprofessional construction market;
- Frequent changes in rules and regulation;
- Urban governance issues and inability to adopt new methods (e-governance, for instance);
- Rapid changes of managers; and
- Inadequate public knowledge and awareness vis-à-vis environmental, cultural and artistic aspects of urban areas and lack of their participation.

Moreover, the relatively low price of manpower in construction sector contributes to the rapid reconstruction. There are cases where a building has been reconstructed twice just to apply a new style. According to ILO, in 2010 the minimum wage of an unskilled worker was around $263, apparently below the poverty line for Tehran which was set at $900.

Building durability does not seem to be given much attention. There is a great tendency toward rebuilding.

In this project we have tried to challenge the current construction tradition and behavior through raising public awareness and mobilizing public participation

TIERS OF URBAN MANAGEMENT

Urban management is carried out at three levels: national, provincial and municipal. At the national level are ministries, organizations, institutions and national councils whose jurisdiction is extended across the country. At provincial level the governorate general in each province represents the Ministry of Interior and coordinates the work of the provincial representation of national institutions and councils.

All national institutions are headquartered in the capital city i.e. Tehran. Therefore, in this particular city there is no need to establish local branches of national councils. There, the Municipality has the prime role in urban management.

The Islamic City Council of Tehran oversees the urban management implemented by The Municipality. The municipal level of urban management is in direct relation with citizens. The chart below shows the various tiers of urban management in Tehran.

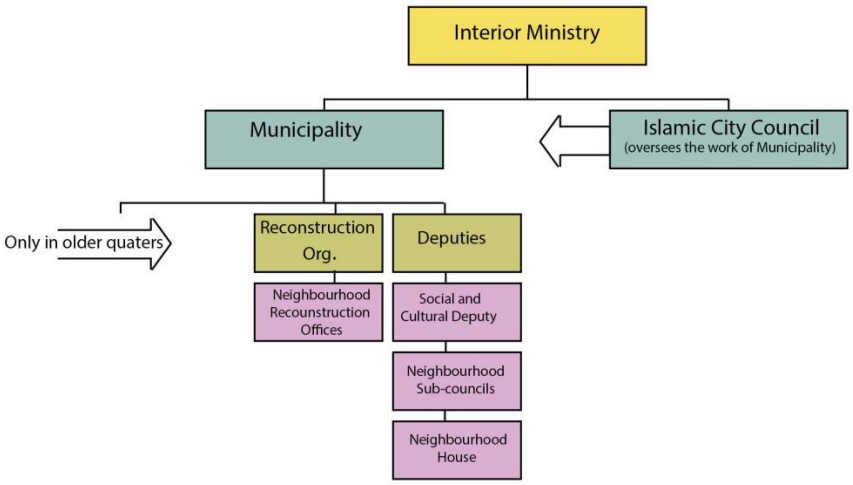


Figure1. Municipal Management Chart

Ministry of Interior (MOI): MOI is mandated with appointment of mayors in cities with a population larger than 200,000, endorsement of structural changes in municipalities, approval of urban plans. MOI oversees the election of city councils and mayors and is therefore indirectly involved in urban management of municipalities.

City Council: In March 1998 the first round of cross-country elections of city councils was held. City Councils are elected for a 4-year term and are responsible for selection of mayors, planning for public participation in social, economic, constructional, cultural, educational, and other issues related to welfare of citizens. The Council monitors and oversees the municipality income and expenditures and reports to the public on issues related to Municipality.

Municipality: Tehran Municipality was created in 1907 as the first modern urban management system in accordance with the new Municipal Law. The law was never fully enforced due to lack of an enabling environment and supporting systems. In 1930 the municipal law was replaced by a new enactment according to which the municipalities became fully dependent to the state system.

In 1949 yet another revision of the law was approved whereby some new responsibilities were given to city councils. In 1952 the law was once again revisited to increase the role of city councils. Most of these responsibilities were taken back after the 1953 coup. In the following years the Law of Urban Renewal and Development was approved and the High Council of Urban Development and Architecture was established. City Councils were reestablished in Tehran and many other cities. However, the membership of such councils was mainly from the pro-government elite and far from being effective.

Municipalities are non-governmental, independent public institutions fulfilling a whole range of responsibilities. These can be divided in five categories of municipal services, oversight and protection, welfare, urban development and resource management. The municipality is supervised by the mayor. Tehran Municipality has 15 deputies including the Cultural and Social Affairs Deputy which is responsible to provide support to two major public participation related cells i.e. the Neighborhood Sub-councils and Neighborhood Houses.

Neighborhood Sub-councils (NSCs) are non-governmental, decentralized, non-political, voluntary based and participatory, self-managing associations at neighborhood level. NSCs are to act as a platform for communication among inhabitants within a particular neighborhood and with other civil based entities as well as government institutions. In other words, NSCs are public representatives to ensure better management of their neighborhood. NSCs act as a channel of communication between the general public and municipal entities (City Council, Municipality, etc.).

As per the provision of Article 71 of the Law of the Structure, Responsibilities, and Elections of the Islamic Councils of 1996 and in view of the immense verity and volume of tasks and challenges of municipality in a super megacity like Tehran, there is a need for decentralization and public engagement. Such engagement should be real, sustainable, and systematic.

The Islamic council of Tehran has created the NSCs in all Neighborhoods of Tehran. NSCs have turned out to be effective representations of citizens at neighbor level. They are to provide a platform for two way communication between people and authorities to ensure public participatory decision making and to benefit the local knowledge and capacities in each neighborhood.

Neighborhood Houses (NHs) have been established in accordance with the aforesaid Article of the municipal law. NHs are created in neighbors to accommodate NSCs and provide a meeting point for citizens of each neighbor. The NHs provides the infrastructure for citizens in each neighborhood to get together to deliberate and work together and to share their spiritual and material capacities. They are the institutional support and executive arms of NSCs.

Tehran Municipal Reconstruction Organization: The 1955 Law of Municipalities did not provide for systematic reconstruction of the dilapidated parts of Tehran. This was address by supplementing Article 111 to the Law in 1966 that provided for the development of the constitution of the Organization in the same year. According to the Article, the municipality can use its own resources to purchase land, old houses and commercial estates and reconstruct them in accordance with new plans. The Organization is responsible for establishment and administration of the Renewal and Reconstruction Secretariat, participation in the development of the vision, strategy and policies regarding the reconstruction of Tehran, development of a plan for revamping dilapidated areas of the city, identification and mobilization of all stakeholders in city reconstruction, development of a package of incentives to advocate for reconstruction of rundown estates by owners and so on.

Public Participation in Urban Decisions

In recent years different government agencies and municipal authorities involved in urban planning and management have made efforts to set for citizen engagement in urban decision-making. Many development projects have been prepared by Tehran Municipality based on public participation and some of them have been supported by international organizations.

The approach has however been haphazard and not very systematic. Every now and then the municipalities and city councils in a certain period of time decide to involve public views in urban issues. Some attempts work and some do not, and some just abandoned. For instance, some projects like the “Healthy City” and “Better Alley” projects have encouraged a high level of public participation in decision making while in some others the level of participation has been limited to consultation or engaging individuals in programme implementation.

One of the most successful decisions was the creation of the Headquarter for Organizing NGO Activities by Tehran City Council in 2008 , which has organized NGO's in eighteen different commissions such as Environment, Women, Education, Post Disaster Organization, etc. The level of engagement of NGOs (abbreviated as SAMAN in Farsi) has been remarkably enhanced with the help of the Headquarter. Same approach has been taken in other cities and today more than 15,000 NGOs are active in the country and the notion of "being an NGO member" is widespread educated citizens.

The new government elected in June 2013 has put public participation and capacity building for non-governmental entities and civil based organizations high on the agenda. It is therefore expected that the coming year will experience a further boom in the quantity and quality of such organizations.

JUSTIFICATION OF SELECTING *SALSABIL* NEIGHBORHOOD AS A PILOT SITE

There are a number of reasons justifying the selection of the pilot site. These include, first and foremost, its location within the rundown quarters of Tehran. These are the areas where the existence of coordinating organizations sets the ground for systematic participation of citizens to implement the project. In the management hierarchy of Tehran, the Reconstruction and Rehabilitation Offices (RROs) are the most active in engaging with citizens through a participatory approach. These offices only exist in the municipalities of the old and eroded parts of the city.

The second reason for selection of the neighborhood was the fact that the RRO in this quarter was one of the most active ones in the city with a history of strong participation of inhabitant citizens. The South *Salsabil* RRO has proved to be one of the most successful RROs of Tehran. It has cooperated with a host of NGOs in various projects to enhance the living conditions of people. The most important and well known of these projects is the "Better Alley Project" implemented by *Bahamestan* NGO. This was one of the few projects with a successful track of active and strong participation by citizens. Therefore the neighborhood was recognized for its good potential to be selected as a target site for this research. Initial deliberations with the responsible officials in the RRO were immensely encouraging.

Another reason for the decision was its location in vicinity of the extensive and hazardous "Navab Project." This is one of the projects emanated from the policy to extend the highway network of Tehran. Due to inadequate and haphazard preliminary studies, the project resulted in the destruction of quite a number of older quarters of Tehran, hence the subsequent destruction of the social texture of those quarters. The adverse impact of this project on the development of the older neighborhoods of Tehran in all cultural, physical, and social aspects of such development is undeniable. *Salsabil* Neighborhood is adjacent to and impacted by the *Navab* Project. As a result of the *Navab* project, *Salsabil* underwent a rapid process of eradication and reconstruction imitating that of *Navab* Project area. The abrupt displacement of old inhabitants and the sudden influx of in-migrating population, the increase in the ration of the built area, vertical expansion of buildings, and fragmented physical development are some of the ensuing problems.

Furthermore, studies showed that 17% of the area of South *Salsabil* Neighborhood is composed of rundown texture that is subject to rapid reconstruction. Therefore, in view of the high volume of construction work, addressing the issue of building façade can be of high priority in this neighborhood. On the other hand, the age structure of the population can lead us to the population dynamics in the

neighborhood. Oldness and youngness of a population and its sex ratio can be inferred from this indicator. According to the general census of 2006, some 37,944 people live in South *Salsabil*.

The age composition of the neighborhood shows that the 20-24, 25-29, 30-34 and 35-39 are the largest age groups constituting 10.96%, 11.83%, 9.86% and 9.61% of the total population respectively. The above statistics indicate that the population of the neighborhood is quite young. This age benefit is conducive to easier familiarity with Internet and global networks as well as a stronger aptitude for participation. The youngness of neighborhoods population is considered as an advantage for the project.The same census indicates that almost half of the female inhabitants of the neighborhood are housewives who play a prominent role in participation-oriented projects. This can be seen as a potential success factor for the project.

In conclusion, South *Salsabil*, because of its location, participation capacity of inhabitants and authorities, demographic factors, development dynamics and its track record of participatory work is one of the most suitable neighborhoods of Tehran for this study.

Figure 2. The diversity of building façade in Hashemi Street as one of the main axes of South Salsabil neighbourhood

OVERVIEW OF THE PROJECT DESIGN AND IMPLEMENTATION

Due to the time consuming nature of beautification projects and in view of the need for public participation as a success factor of such plans, this research project has been defined for a relatively long period of time. Interaction with inhabitants was done through face-to-face interviews carried out by experts, researchers and students in the neighborhood, distribution of printed questionnaires as well as using the websites of Neighborhood House and RRO. Particular emphasis has been put on the use of electronic media. Internet facilities are used to update the pool of information about plans and projects and other relevant information.

The project come on being the first of it kind, has not been abled to take a gender or age specific approach. We hope that this shortcoming can be addressed in subsequent projects.

6.1. Preliminary Phase

In this stage more than 5000 photos were taken from different forms and typologies of building façades and building textures in various parts of Tehran. More than 20 typologies were identified out of which seven types were recognized as the most popular (see Table 7.1). The seven typologies were thoroughly analyzed as a result of which simple brick façade type came out to be the most suitable façade type in consideration of durability, reparability, earthquake risk, economy, local availability of material, transportation and handling, easier and noiseless construction, historical identity of Tehran and so on.

In this phase of project implementation the team had several meetings to decide on the exact implementation approach of project. Finally we came to consensus that the Neighborhood House should be communicated to as the first entry point. Thus after the selection of pilot neighborhood the team approached to Neighborhood House and held a series of meetings with its members majority of them happened to be women. The Neighborhood House undertook to put us in contact with the RRO, which resulted in a process of consultation with the latter office.

6.2. First Phase: Data Gathering and Desk Review

Once the team got engaged with RRO they accepted that until such time that the project establishes its dedicated web site the team can use the RRO's web site www.thrbaft.ir. Although the dedicated web site is not yet fully operational we have been able to execute two steps of the plan through the aforesaid portal. There are of course challenges that delay the progress including the bureaucratic processes to go through.

In this step, though using Form 1 information was gathered from inhabitants about the houses they reside in. The form seeks information about the façade type of their residences. The information includes the history and original façades of buildings, inter-relations with adjacent buildings and public spaces and so on. The information was compiled, categorized and underwent statistical analyses. The results were put on the websites along with the expert analyses and opinions. In this stage 1,000 forms were distributed among 31,000 inhabitants of the neighborhood. Interviewees were requested to check the website for the results. They were also requested to encourage their acquaintances and relatives to fill in the form electronically on the website.

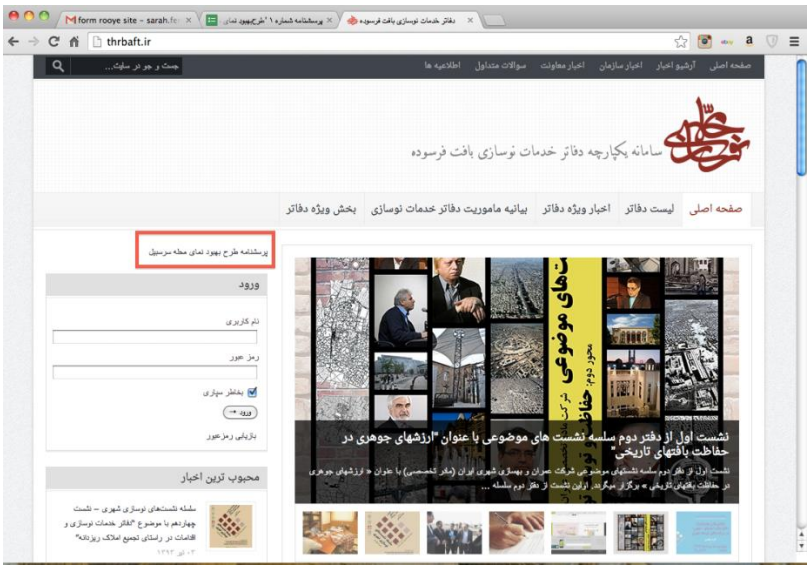


Figure 3. The screenshot from the RRO Website (link to the first project form highlighted in red)

6.3. Second Phase: Designing

In this stage the experts in the project team, with the assistance of a number of external professionals designed a number of plans to improve the main axes of the neighborhood and its rundown texture. The designs are made public through the website for comments and questions. Various façades types and construction materials are being designed and put on the website for inhabitants and constructors to chose from. It should be noted that this process will be a dynamic and rolling practice as new ideas, designs and construction information will emerge over time and put up on the web.

6.4.Third Phase: Receiving and documenting Feedback, Awareness Raising

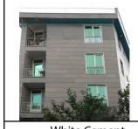
This phase of the project is divided into to sub-phases. In the first sub-phase the feedback provided by inhabitants will be considered and factored in the refinement of the designs. This is followed by a sub-phase of public awareness with a focus on target groups like women, and students. To that end, project staff accompany RRO experts in their visits to schools, mosques, and other public places to present specific training materials specifically prepared for this purpose. Also, the finalized designs will be exhibited on certain occasions in public exhibitions.

6.5.Forth Phase: Monitoring and Evaluation

In time intervals of 1, 3 and 6 years from the completion of the third phase, the impact of the project on the shape of the newly built buildings will be monitored through field visits and expert tests. The results, successes, shortcomings and lessons learned will be made public through the Neighborhood House website along with the improvements made.

RESULTS

The preliminary studies carried out under this project show that there are more than 20 façade typologies in Tehran in terms of the design, material, color etc. out of which seven types have been singled out as the most prevailing.

Style common name *	Construction Period	Dominant Colors	Form	Structure	Roof	Openings	Decoration	Sustainability
Roman Style 	2008 to today		This emerging style try to immitate the western classical architecture elements with the usage of modern stonse and sometimes cement.	Metal or reinforced concrete	Flat roof	The metal simple windows which usually don't communicat with the form of other parts and decorations.	The decorative, not suppotive columns that do'nt follow the form of 5 basic columns of classic architecture.	I. There is no control on the strength of joints between the stone tiles and the underneath wall. II. The higher costs of construction III. The high amount of material embodied energy
English Style 	2010 to today		It is known as english style because the red brick usage. Usually it is combined with Travertine stone or other types of stone.	Metal or reinforced concrete	Flat roof	The simple rectangular openings sometimes with reflective or mirror glass.	Modern decorations with different volumes subsided and projected.	I. The bricks are locally produced II. They are suitable to resist earthquakes III. The color does'nt match with Tehran context and identity.
Composite Style 	2010 to today		The series of aluminium sheets whith different colors and dimensions.	Metal or reinforced concrete	Flat roof	Sometimes with strange window forms and colors	The combination of strange colors and some modern forms	I. There are proper for energy saving. II. They are not locally produced and are imported from foreign countries. III. The large alumininum sheets are not suitable to resist earthquakes.
Travertin Style 	The second half of eighties to today		The travertine stone exists in any form and color combine with other materials and sometimes curtain walls	Metal or reinforced concrete	Flat roof and in some cases inclined roof	Any form of opening with aluminium and sometimes wooden frames	Many types of dcoration styles	I. There is no control on the strength of joints between the stone tiles and the underneath wall. II. It is not economic. III. It is preferred for internal floors not wall.
Granite Style 	The second half of eightys and the begining of nineties to 2000. Today they are not common.		The gratnite stone exists in any form and usually dark colors	Metal or reinforced concrete	Flat roof and in some cases inclined roof	Any form of opening with reflective glasses	Not very decorative	I. There is no control on the strength of joints between the stone tiles and the underneath wall. III. It is preferred for internal floors not wal
White Cement 	It was very common in the begining of the nineties. Although in recent years they are some new buildings with this style.		The majority of white cement facades are with curve forms	Metal or reinforced concrete	Flat roof	Simple or curved opening with reflective or normal glasses	With western classic architecture elements	I. It is a locally produced and very economic material which it's combination with brick is beautiful. II. It should be tinted and washed every 5 years.
Decorative Brick 	1980-1995 Although this kind of bricks are not popular today, the remnents of this bulding typolgy are the more aesthetic ones.		The simple more local forms	Metal or reinforced concrete	Flat roof	Simple or curved opening with reflective or normal glasses	Not very decorative	I. The bricks are locally produced II. They are suitable to resist earthquakes III. The color is as the same of old buildings IV. The light color is proper for Tehran climate

* The common name: The name of style that is popular in real eastate market.

Table 2. The most prominent façade typologies in Tehran

Among the seven most prominent types, the so called "Roman" façade has been the most popular in housing market of Tehran. This type is normally constructed with heavy pieces of expensive decorative stone and combines an imitation of some western architectural elements with Arabic ornaments around window frames. The appearance of this style has no formative and environmental harmony with Tehran's realities and requirements. The large pieces of stone are loosely connected to the main walls of the building, most of the time without any fixing structure. In a natural disaster prone place like Tehran, it is not hard to imagine the immense risk thus imposed due to the stone pieces falling from such high elevations.

In the first phase of the project it was decided that 1500 copies (with a deviation of 1%) of the questionnaire be distributed – 1000 printed copies to be distributed physically and 500 copies

electronically. It was assumed that even if 1 interviewee could not fill in on-line the questionnaire, the rate of deviation would become 5% which is still acceptable.

In the one-month period of data gathering stage, in addition to the 1000 printed copies, 127 people completed the form online. The results of questionnaire analysis have been summarized in Table 7.2 .

Personal Information	Women		23
	Men		25
	Total		48
	owner		11
	Tenant		37
	Age	less than 20	194
		35-20	201
		45-35	242
		55 -45	298
		more than 55	65
	Residence in neighborhood	less than 5 years	2
		10-5 yeas	122
		20-10 years	398
		more than 20 years	480
	The previous neighborhood or residence city	Tehran	787
Residence Information	n. of floors	Other cities	213
		4-0	393
		4 to 8	605
		more than 8	2
	the age of building	less than 5	555
		5 to 20	212
		more than 20	233
	The façade material	light stone like travertin	455
		dark stone like granite	105
		glass (curtain wall)	0
		composite(aluminium)	11
		brick	198
		decorative brick	111
		cement	35
		decorative cement	85
	The window type	normal rectangular	997
		other forms	3
	window glass type	normal	629
		reflective	90
		coloured	27
		double or triple	151
		both double and reflective	
Common Taste and Knowledge	The best photo selection	1. Granite façade	183
		2. Brick façade	60
		3. Roman façade	636
		4. Composite façade	121
	The most sustainable material	light stone like travertin	403
		dark stone like granite	3
		glass (curtain wall)	0
		composite(aluminium)	321
		brick	5
		decorative brick	183
		cement	0
		decorative cement	85
Neighborhood info	The most beutifull neighborhood building	residential	856
		cultural and museum	109
		mosque	35
	The prefered neighborhood public space	cultural space	121
		park	314
		mosque	25
		nothing	540

Table 3. The first stage results

The Neighborhood Council was highly supportive to allow access to the website and declare our readiness to cooperate. Also, the level of participation in this research was very good and interviewees highly cooperating and engaging. The physical interview was carried out across all age groups whereas people under 45 attended to the online interview.

In response to the question about the most beautiful façade option, 65% preferred the "Roman" façade type with large stone pieces, 12% selected aluminum covering and 18% opted for granite stone. Only 6% selected the traditional bricks to be used for building façade.

Another question was about the best suitable façade type in case of earthquake. Only 18% selected bricks, the rest was of the opinion that light colored stone would be a suitable option.

All in all it can be concluded that the level of public knowledge about the area of concern is relatively low. Particularly the younger age groups know very little about the history of the city and its aesthetic and environmental aspects.

Nevertheless, the inhabitants showed a lot of interest to the project and many of them expressed their gratitude for having taken on board the research.

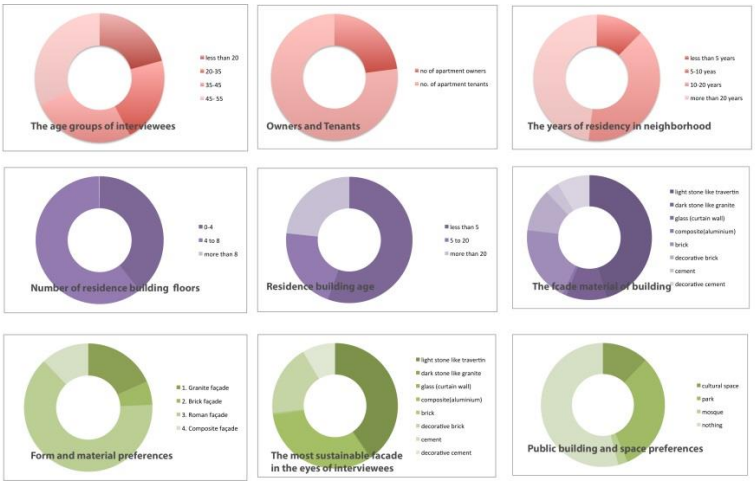


Table 4. Analysis Diagrams

CONCLUSION

The architectural design, construction material, and the view of buildings are directly linked to the aesthetic, safety and sustainability dimensions of cities. Due to its rapid physical growth Tehran has essentially failed to grow in a harmonised and sustainable way. Hence the role of the public opinion in determining the urban features of the city has been considerably neglected. The emergence of electronic media has created a great potential to facilitate public communication. Thoughtful use of such media can help raise the awareness and responsibility of citizens towards the management of their cities. Such approach should be started with a pilot phase and at small scale (one neighbourhood). Public cooperation and political will of local authorities, availability of social media and a desire for change are among the main factors of integrating public participation into urban decision making.

The research has revealed the following summary conclusions:

- There is a general desire on the parts of citizens to participate in urban decision making and openness to use the ICT instruments. While it may be too early to make an evidence-based conclusion on the usefulness and practicability of web-based interaction with the public vis-à-vis architectural aspects of urban development (e.g. diction-making on building facades) the preliminary feedback is quite promising. For instance, a lot of interest is shown by citizens when they are informed of relations between building façade and seismic risks given the earthquake proneness of Iran as a whole and Tehran in particular.
- There is a need for building a three-way trust between citizens, constructors and urban managers and a need for systematic relations between the three parties by establishing rules and regulations as well as an enabling environment.
- Generally there is a lack of awareness on the part of citizens regarding the links between architectural and aesthetical features of buildings and the safety and sustainability aspects.
- Changing regulations, enforcement shortcomings and frequent changes in management of urban areas have an adverse impact on participatory approaches to urban management.
- So far the communication between citizens and professionals active in the area of urban planning and management remains sporadic and non-systematic, despite the interest and enthusiasm on both sides. However with the sharp increase in the coverage of and access to electronic media, it is predicted this relationship will be significantly improved with the help of such media.

REFERENCES

Authored book:

Mozayeni, M. (1995). *Municipal management in Iran, Problems and Possibilities***.** Tehran/Iran: Tehran Ministry of Housing and Development, National Organisation for Land and Housing.

Madanipour, A. (1998). The making of a metropolis, Tehran, (World cities series), Chichester: Willy.

Kiani, M. (2002). *The architecture in the first period of Pahlavi Dynasty*, Tehran/Iran: The institute for the studies on Iran History.

S-Haghighi, B. (2007). The Progress of e-Governance in Iran, Blekinge Institute of Technoligy.

Journal article:

Mehdizadeh, J. (2004). An overview to the spatial and physical development of Tehran, *National Journal of Jostarhaye Shahri (Farsi)*, 2-2001.

Yaghoubi, N. M., A. Haghi, S. Khazaee (2011). E-Government and Citizen Satisfaction in Iran: Empirical Study on ICT Offices. World Applied Science Journal 12 (7): 1084-1092, 2011.

Published proceedings:

Mohammadi, H. (2010). Citizen Participation in Urban Planning and Management, The case of Iran, Shiraz City, Saadi Community. Kassel University Press, Germany.

Rezazadeh, F. et al. (2011). A SWOT and PEST Analysis of e-Governance in Iran. 5th Symposium on Advances in Science and Technology in Iran.

Web site:

ILO (2010). New Minimum Wage Rate Spurs Widespread Indignation, Iran Labor Report, 16 March 2010, from: http://www.ilo.org/dyn/travail/doc

Ashrafologhalaei, A. (2005) e-Governance, e-State in Iran – Administrative

Reform Plan, http://www.engagingcommunities2005.org/abstracts/Ashrafologhalaei-

Ahmadreza-final.pdf/

E-mobility and urban governance in developing countries: case of Nigeria

Joshua A.Odeleye, B.A, PhD

Nigerian Institute of Transport Technology (NITT)

Abstract

Cities across the world today are synonymous with series of transportation problems, among which are: traffic congestion, accidents, pollution, delays and energy inefficiency. These problems are pronounced largely as a result of the spatial structure of cities, especially in most developing countries, where the points of production (factories), residential zones are geographically located farther away from centres of commerce and consumption (markets). The aim of this paper therefore is to advance the need for the deployment of innovative ***Information and Communication Technology (ICT)*** *and other electronic platforms, as strategic mobility management option for sustainable urban mobility planning in Nigeria. The paper findings reveal a progressive ICT and e-platforms deployment in Nigeria socio-economic activities. It also highlighted the positive mobility impact of such deployment, whereby "physical travels" are converted to "virtual travels". The paper consequently recommends a continuous development and deployment of ICT based e-platforms in Nigeria. Because, the integration of the underlining sustainable urban mobility management benefits of such deployment into all urban policies will provide the rightful directions for it to be optimally embraced, utilized and owned by the public.*

Keywords: *Mobility Management, Urban Transport, Urbanization, Innovations; e-platforms; urban commuting pattern.*

INTRODUCTION

The consistency being witnessed in the advancement of Information and Communication Technologies (ICTs) in this 21st century is positively driving the art of urban mobility planning and management into becoming more scientific, because virtually all sectors of the urban economies and governance are today ICT based globally. Hence, the concepts of ***"Open Data", "Big Data" and "Smart City"*** are partly evidences of the global ICT revolution.

However, as the trend seems peaking in developed countries, it is been vociferously deployed in most developing countries. According to Van Audenhove Francois-Joseph et al. (2014) in a study of 66 cities it was found out that in 2011 the average penetration of smart cards was 0.34 cards per capita in those cities surveyed. But by 2013 this has increased to 0.44 cards per capital (+14%). And the growths recorded are largely from developing cities such as Dubai, Delhi, Buenos Aires etc.

The World Business Council for Sustainable Development (WBCSD), 2004 report also asserted that the ICT divide, between developed and developing countries has been closing more quickly than physical forms of mobility. One example, according to the report, is Tanzania where mobile phone ownership has increased from just over 2000 subscribers in 1995 to 3.8 million in 2006 (1 mobile phone per 10 people).This however compares with 230,000 registered vehicles in 2006 (1 vehicles for every 170 people).

Despite the increasing use of ICT in developing countries, the extent at which the technology has been deployed in providing seamless, integrated, cost-effective urban mobility solutions are still marginal. This is because, most ICT deployment, especially in the urban transport services provision, are unilaterally done with little or no consideration for integration of various mobility needs from multimodal perspective. The existing system is currently "vertically separated", rather than been "vertically integrated". The existing ICT deployment in the socio-economic activities is sparingly providing solutions to the mobility needs of the people.

The aim of this paper therefore, is to highlight strategies for integrating both 'physical and virtual' mobility needs of urban dwellers in Nigeria deploying combination of ICT applications and e-platforms , with a view to managing demand for physical travel, making Nigerian cities smarter and; consequently reducing the noticeable levels of urban transport externalities of road traffic congestion, accidents, pollution, energy consumption in Nigeria urban centres.

BACKGROUND

Simon Edwards (2011) quoting Kellerman (2006) and; Preston and Raje (2006) defined mobility as the ability or ease to move from one place to another. There are two major types of mobility, namely: physical and virtual. Physical mobility entails the use of one or combination of the five modes of transport to engage on a journey from point of origin to destination and arrive safely. However, "Virtual Mobility" refers to the use of the new Information and Communications Technologies (ICT) as an alternative to physical mobility. This is all about using ICT as a means of "getting to" activities that would previously have required transport - or would have been impossible to do. The key applications, therefore, that are making an impact on peoples travel behaviour and the way they transport things, according to UK Department of Transport report (2014), are:

- e-work (telework, telecommuting - all the forms of remote work using ICT;
- e-business & e-commerce (business to business and business to consumer online transactions and service/product delivery);
- e-services (e-government services, e-learning, telemedicine, etc);

All of these in principle imply that physical travel is to some degree replaced by online activities using the new ICT. But the impacts are not as straightforward as that. The impacts that researchers and policy-makers are looking at are, broadly speaking how virtual mobility:

- replaces travel;
- works alongside physical travel; and

- generates new journeys.

The primary objective of e-mobility, that is replacing 'physical' mobility with 'virtual' mobility using ICT based platforms is indeed in line with the concept of environmentally-friendly urban transport objective, which is defined as the ability to meet the needs of a society to move freely, gain access, communicate, trade and establish relationships without sacrificing other essential human or ecological value today or in the future (WBCSD, 2007). It is in view of this conceptual definition and inherent benefits of environmentally-friendly mobility that the concept of Smart city or Digital city is globally been developed today. According to Bifulco, F, Amitrano Cristina. C and Tregua Marco (2013), Digital city is associated with a city that is capable of monitoring and integrating conditions of all its critical circumstances virtually. Also, a European Union (2013) report highlighted that, "developing smart cities is not "business as usual", nor is it a 'one size fits all approach'. Rather, "it will engage many sectors (ICT, Transport, and Energy) and areas such as Finance, Technology, Legislation, and Procurement.

Additionally, smart city solutions could include: innovative, integrated technologies and services with applications in buildings-heating/cooling, grids, mobility, traffic management, broad band communication that contribute to sustainable development in urban centres. And, from mobility points of view, travel information centres in several cities are now providing citizens and visitors with real time travel information and transport planning services both face-to-face and via web, the report added.

In as much as digital cities are electronically integrated cities, so also the use of ICT in any urban environment should be an integrated system. Shaheen Susan A and Christensen Matthew (2014) stated that the right approach should be an integrated platform that enables them (travelers) to seamlessly compare (cost, route, time spent etc) and access and pay for different transportation services. But, reverse is the case in most cities.

Hence, Shaheen Susan A. and Christensen, Matthew (2014) observed that e-mobility applications even in some developed countries, are still been deployed independently such that travelers use transit smartcards, car sharing mobile apps and /or smartcards to access mode. Rather, "a single platform for multimodal transportation would exponentially increase the value of sustainable transportation modes through ease use, accountability and by creating virtual and physical connection points" they concluded.

Teleconferencing is one of the prominent components of virtual mobility platform. It is thus defined as "interactive group communication (three or more people in two or more locations) through an electronic medium", Rogans and Simmons (1984). In general terms, teleconferencing, according to Rogans and Simmons (1984), can bring people together under one roof even though they are separated by hundreds of miles, and saving money and travel time are part of the advantages of teleconferencing. Also, the World Business Council for Sustainable Development (WBCSD,2007) report asserts that recent developments in ICT have greatly increased the opportunities for people to "connect" virtually without the need for a face to face visit or transaction. The report added that mobile phone penetration rates are expanding much more rapidly than transportation, with 85% of the one million new subscribers everyday coming from the developing countries.

Urbanization and Urban Mobility in Nigeria.

The urban mobility problems being experienced in Nigeria today are partly due to two factors, namely: urban population explosion and; paucity of transport infrastructure that allow for seamless mobility from multimodal point of view. For, as urban population grows and cities spread beyond their traditional

boundaries without commensurate sustainable mobility planning, investment, infrastructure supply and integration; transport externalities of traffic congestion, accidents, pollution and energy consumption render commuting in the cities unpalatable while cities become less productive, creative and competitive in Nigeria.

The urban population explosion is a global phenomenon and therefore not a peculiar problem to Nigeria. According to Sub-Saharan Africa Transport Program (SSATP, 2014), urbanization has been growing in the developing countries, and the share of the urban population is increasing more rapidly ever than before. It is anticipated that by 2020 the proportion of the population living in urban areas will exceed the rural population. Population is expected to double on the continents in the next 40 years, with a very high growth in urban areas, the population of which will double by 2030.

On the dearth of urban transport infrastructure that is incommensurate with the growing volume of traffic and demand for transport in most developing countries, the WBCSD (2007) observes that the last 20 years has seen massive growth in the number of cars, bikes motorized two-wheelers and para-transit vehicles (such as minibuses) in many developing countries. Vehicles ownership is rising at a rate of 15 to 20 percent annually in much of the developing world, as more people live and work in cities. However, the necessary transport infrastructure, such as roads, pavements, bike lanes, public transport, traffic management, driver education and; emission controls are developing more slowly, generating congestion, pollution and high rates of accident rates. Despite this rapid growth, vehicle ownership rates are still relatively low ranging from 15 percent in Mexico and Brazil to less than one percent in India and Nigeria.

It is imperative therefore, to deploy technological solutions and innovation that is capable of combining physical and virtual mobility needs in a more realistic and sustainable manner. Therefore, the combination of the use of array of E-mobility solutions that allow for speedy transaction and delivery of transport services to the public in urban centres such as: E-Ticketing, Smart cards, Public Transport apps and e-portals, centralized traffic control systems as well as encouragement of the use of Teleconferencing, E-shopping, E-portals by corporate bodies and individual in cities will not only contribute to the reduction of transport externalities of congestion, accidents, air pollutions and elongated travel time, it will equally make the cities to become more competitive, creative and productive.

Mobility Management

Mobility management therefore, is all about sustainable urban travel demand management. It is a way of influencing travel behaviours and/or decisions of people, more importantly in an urban environment. Typical examples of mobility management as it relates to the objectives of this paper are: teleconferencing, teleshopping, tele-working, e-logistics, e-mobility-portals, web-based e-platforms in the finance, commerce, education, health, agriculture and other sectors of an urban economy. Other aspects of mobility management include: taxi improvement, car-sharing, freight distribution centre, fuel tax, tolling etc.

Mobility management strategies as listed above are nowadays being deployed to address urban mobility challenges of traffic congestion, pollution, accidents, and energy consumption among others. In Nigeria, the E- banking, E-shopping E- portals and apps being deployed by corporate organizations and government agencies is helping in no small way to manage the populace need to visit some critical locations in urban centres, especially at peak periods, for banking, trading, administrative purposes, since same transactions are made available online. For instance, the introduction of prepaid E-ticket on the Lagos BRT, managed by the Lagos Metropolitan Area Transport Authority (LAMATA), has recorded a

reasonable level acceptability and; it is attracting some of those who commute by private cars daily to using the BRT services. Again, the presence of LAGBUS- a Franchised Public Transport company in Lagos- on the social media, provide adequate and real time information on its services to commuters encourages more commuters to patronize its service. On the continent of Africa, as observed by Nick (2012) available IBM's Intelligent Operation Centre (IOC) for smarter cities that provides a unified view of all city agencies so that cities can predict events and quickly respond. The IOC software allows cities to recognize events as they arise and put responses in place to better manage the impacts.

The above practical examples of ICT and E-mobility solutions deployment in urban centres in Nigeria and elsewhere are structured from 'stand alone' point of view. They are neither integrated nor interconnected with other sectors of the urban economy electronically, although with the exception of the IBM case in Kenya. As a result, Litman (2014) recommends that it is important for local urban authorities "to plan and evaluate integrated mobility management programs, rather than deploy individual 'stand alone' strategies". For the most successful use of mobility management occurs when positive incentives (e.g. modal choice information, car pooling programs, teleworking) are combined with users' charges that provide a clear price signal to motorists, so as to prefer public transport to private cars.

ICT and the Changing Pattern of Urban Mobility in Nigeria.

The advent of telecommunication technologies in Nigeria; and subsequent expansion of the networks and services in terms of numbers of subscribers and service providing companies have tremendously changed the pattern of urban mobility in Nigeria. The introduction of Global Systems for Mobile Telecommunication (GSM) networks around 2002 in Nigeria is observed to have, over the years, helped reduced frequency of individuals to land uses that are in the past synonymous with heavy traffic of persons daily. Notable among these urban land uses are: financial institutions (i.e. banking, insurance etc), administrative offices (government and private), educational centres-for the purpose of registering and checking results, bus-stops, airports, rail stations and seaports) shopping malls and online sales e.t.c.

Fig.1: Urban centres in Nigeria and Geographical location of Nigeria in Africa. www.worldatlas.com

With the advent of GSM and e-portals, some of the transactions that are before now been done in persons are now been conducted through phone calls and /or e-portal of these organizations. For instance, averagely 60% of commercial banking transactions are now online based. For instance, with the commencement of a nationwide internet banking (*cashless Nigeria*) by 1st July, 2014 in Nigeria it is expected that the percentage of e-transactions and by extension e-mobility in banking and other sectors of the urban economy in Nigeria would grow tremendously. This will somehow relieve people the stress of travel to and from banking halls spatially located across cities in Nigeria.

It is also a strategic mobility management option, if well harnessed, that will relieve the roads of traffic congestion and other noticeable traffic externalities at peak periods. From the same perspective Oladimeji and Yusuf (2013), observed that GSM has enable people to communicate with each other on real time basis, thus saving time and money and provide access to real time information. Additionally, it has equally allowed for real time road traffic information sharing between the traffic radio station in Lagos and motorists, such that in real-time motorists can now decide the available alternative routes to the congested route at every given time.

Other benefits, as the current trend is improved upon and more e-portals that will enable integration of most urban activities are introduced, will include:

- cleaner urban air quality;
- improved urban energy use;
- improved urban productivity level;
- Enhanced real-time urban information sharing etc.

However, integrating mass transit solutions into the emerging ICT and e-platforms being currently developed and deployed in Nigeria, by developing ICT based integrated inter-modal e-portals through a strategic partnership and alliance by the urban centres authorities in Nigeria and the under listed private corporate interests and stakeholders, will help reduce demand for physical travels and, consequent realization of the sustainable urban transport objective of drastic reduction in attendant effects of transport which include, accidents, congestion and pollution. Therefore the list of the strategic private partners that the public authorities needs to collaborate with in developing an integrated ICT based portals and e-channels, with a view to realizing the integrated 'virtual' urban mobility opportunities would include the following:

- taxi service operators;
- bike riders;
- car sharing providers;
- operators of parking facilities; and
- major mobility generators such as business parks,
- financial institutions
- educational institutions,
- utility companies

- public administrative offices etc.

ICT Based Transactions and Mobility Implication in Urban Nigeria.

The progress made so far in Nigeria in the last ten years in the areas of ICT and e-platforms development and use is commendable. Notable examples of such deployment and use abound. Among the prominent ones are the e-passport, e-custom, e-wallet (agriculture), cashless Nigeria, e-learning. But, it appears there is sectoral policies gaps and consequent institutional disconnect in terms of ICT infrastructure and e-platforms development. It is noted that there are diverse sectoral policies objectives guiding ICT and e-platform development and use in the various sector of the Nigeria economy. Often time, most deployment is often tailored towards the sectoral primary objectives without highlighting the secondary objectives of such platforms capability in managing demand for physical transport in an urban setting. Thus, the public are less sensitized nor encouraged to use the platforms not only for the primary sectoral objectives, but also for the secondary objective. As a result, the public are yet to own some of these platforms, because of the paucity of information.

Notably, the new cashless Nigeria policy fails to highlight the 'virtual' travels opportunities embedded in the new policy alongside the sectoral objectives of cashless Nigeria. Rather "the aims of the new policy are reduction in (NOT ELIMINATING) the amount of physical cash (coins and notes) circulating in the economy, and encouraging more electronic-based transactions (payments for goods, services, transfers, etc.). And, the expected benefits include:

- For Consumers: Increased convenience; more service options; reduced risk of cash-related crimes; cheaper access to (out-of-branch) banking services, access to credit and financial inclusion.
- For Corporations: Faster access to capital; reduced revenue leakage; and reduced cash handling costs.
- For Government: Increased tax collections; greater financial inclusion; increased economic development. Increased tax collections; greater financial inclusion; increased economic development".

Urban Transport Policy Issues in Public Acceptability of E-Mobility in Nigeria.

The twin primary objective of the Nigeria Draft National Transport Policy, 2014 is ADEQUACY and EFFICIENCY. This is in terms of accessibility and reliability of transport services and infrastructure. Therefore, for this objective to be realized optimally there is need for appropriate management of demand for travels, especially in urban environment, such that current challenges of traffic congestion and other related externalities could be minimized at the least cost. E-mobility thus provides such unique opportunity to manage the demand for physical travel.

It is therefore recommended that government in collaboration with the private stakeholders should use the "stick and carrot" policy approach in getting people and corporate bodies embrace the ICT based platforms that are capable of facilitating e-mobility. For instance, eco-labeling of products and services of companies that deploy ICT platforms to reduce demand for physical travels in urban environment should

be encouraged and supported, while those who fail to comply should be penalized by the authority. This measure will encourage other corporate bodies to follow suit.

Also, the introduction of 'polluter pays' and parking charges, especially in central urban district areas is capable of encouraging more individual to result to the use of ICT based platforms, rather than engaging on a trip that may not be necessary in the first instance. Also, encouraging businesses to incentivized on-line transactions, whereby airline, bus and train tickets purchased on-line are usually cheaper than purchase at terminals, would help cities in Nigeria to manage demand for physical travel and; consequent reduction in transport externalities.

SOLUTIONS AND RECOMMENDATIONS

The people will buy into this new development, if the urban transport authorities in collaboration with corporate stakeholders could do the following:

- Educate and sensitize the populace of the inherence socio-economic and health benefits of replacing physical travel with virtual travel, where applicable. The benefit includes: reduced in congestion, accidents, pollution, global warm, travel health risks etc.
- Corporate organizations should be incentivized by the authority, tax holiday could be given to them, if they can prove in quantitative terms the amount of physical transaction/patronage they are able to convert into virtual travels within a given time.
- The people's well-being should form the basis for the use, and not just another government top-down planning approach that is remotely done with little or no contributions from the people, Therefore, aggressive sensitization program on media should be funded by the authority to create public awareness on why e-mobility is being promoted.
- Government should take a positive lead by ensuring that a reasonable percentage of its transaction is web or ICT based.

It is imperative for institutions in developing countries responsible for Information and Communication Technology (ICT), Urban Transport Planning and Development as well as other stakeholders in all sectors of the economy such as manufacturing, commerce, education, health and finance among others to team-up and ensure that e-mobility is made one of the major focal points of ICT infrastructure development in Nigeria. We need not to continue to perceive the primary objective of ICT deployment and integration in most businesses as mainly to achieve paperless transactions, minimize fraud, and enhance security as well as serving customers exceedingly.

Rather, there is the need for the Nigeria Transport Authority in collaboration with her sisters government departments in various areas of governance in Commerce, Finance, Sport, Information and Communication Technology, Health and; Education among others and the corporate private stakeholders to team up in finding a strategic ways of harmonizing the existing 'stand alone' ICT/e-platform infrastructure deployment, with a view to integrating urban mobility objectives into ICT infrastructure development and utilization, especially in urban areas across Nigeria. For, building e-mobility agenda on a solid foundation as Van Audenhove Francois-Joseph et al. (2014), observed requires that urban institutions need to identify and work progressively with relevant stakeholders, viz:

- Mobility service operators (i.e. motorized individuals, public individual, public non –motorized and stationery);
- Systems Integration providers;
- Connectivity providers (i.e. Fixed, Mobile and NFC);
- Data provision providers (i.e. maps, congestion information etc.);
- End users equipment providers (Mobile handsets, Smart cards, Chips etc); and
- Value added service providers (i.e. rental, sport, culture, tourism, foods beverages etc).

It is also necessary for urban transport coordinating institutions in cities across Nigeria to collaborate with e-platform designers/developers, telecomm services providers and agglomeration of corporate urban businesses, to device appropriate integrated e-platforms that will suitably serve the urban centres seamlessly, and thus allow for modal use interchangeably. Moreover, combining the business objectives with urban mobility agenda through ICT based platforms will help cities in managing their demand for travel efficiently and cost-effectively. Hence, the introductions of the following specialized ICT based integrated transport solutions are hereby recommended in Nigerian urban centres: deployment of smart cards on public transport, such as London Oyster card and Octopus card in Hong Kong, development and use of integrated e-platforms such as: **SMILE** (**S**mart **M**obility **I**nformation and Ticketing Systems **L**eading the way for **E**ffective e-mobility services in Vienna, Austria); Google Now; Nokia Here; Stuttgart Services Mobility Platform; Twende Twende (meaning 'Let's Go' in Swahili) operated in Nairobi, Kenya by IBM.

FUTURE RESEARCH

The authorities in Nigeria should consider funding research to determine the secondary impacts of the few e-platforms deployment in urban mobility management, accessibility and air quality. This is with a view to determining how best the e-platforms could be integrated into urban transport planning in Nigeria.

CONCLUSIONS

This paper has succinctly highlighted the growing trend and huge potential of the Nigeria ICT sector, going by the increasing number of subscribers and huge numbers of active internet subscribers over the last decade. It also highlighted the failure of stakeholders and transport planning institutions in Nigeria to identify the key travel demand management role ICT and e-platforms deployment in various businesses in Nigeria is playing, and could still play, if urban institutions in Nigeria could harness the integration of the existing e-platfoms from a public/ private partnership perspective.

In this paper the deployment of ICT based platforms in public transport and electronic transactions in businesses are not been regarded as the only solutions to urban mobility problems, rather the combination is regarded as one of the innovative global strategic options in managing demand for travel in urban environment. Dupuy (2011) quoting Rallet and Burmeister (2003) stated that "advanced telecommunications are no substitute for face-to-face relationship; that they tend, on the contrary to increase the movement of people and goods; and that there is extremely little scope for transport/telecoms substitution in the productive sector and trade". Dupuy (2011), however, agreed that the substitution

effect most probably will play a role, but only in a long-term and indirect manner, through businesses and individuals alike changing their activity patterns: booking tickets on the Internet, for example, instead of going to a travel agency.

Therefore, the combination of ICT based e- platforms and prepaid electronic public transport smart cards that will integrate major, if not all, urban socio-economic activities, such that on a Smart electronic card, mere touch of a GSM smart phone apps and/or access to corporate websites of companies all forms of bills such as: school fees, taxi, bus ticket, parking, shopping, rent a car etc could be paid in no time, is hereby recommended as 'soft' urban transport policy strategic approach of managing intra-urban demand for travel as Nigeria urbanized.

In conclusion, the public transport operators and/or coordinating agencies in Nigeria, such as LAMATA, and even Abuja Urban Mass Transit company in Nigeria, as major urban transport co-coordinating institutions that are saddled with the primary responsibility of ensuring that people moved seamlessly in urban environment, need to reconsider changing their today's operational stands of been "transport providers" to "integrated solution providers" that combined and encouraged the use of enviable ICT based platforms and electronic transactions on all business, with a view to replacing some of the unnecessary physical travels that contributes immensely to traffic problems in cities with virtual travels. Thus, creating alternatives to over reliance motorize travels and its attendant effects.

REFERENCES

Africa Transport Policy Forum, SSATP Annual Meeting 2013: The Sustainability Factor-Towards Clean and Safe Transport in Africa. Proceedings. Dakar, Senegal. April, 2014.Retrieved May 16, 2014, from www.ssatp.org. p.9

Bifulco, F, Amitrano Cristina. C and Tregua Marco (2013) Smart Cities and intelligent transport initiatives:A paradigmatic overview. Proceedings in ITS 2013. Intelligent Transportation Systems (ITS) 2013 Virtual Conference. Zilina, Slovak Republic:EDIS Publishing. p 9-11 from Retrieved 12th Jan,2014, from www.itransport.sk.

The cash-less Nigeria. Retrieved June 28, 2014, from http://www.cenbank.org/

Dupuy, G. (2011) *Towards Sustainable Transport: The Challenge of Car Dependence*. Surrey, United Kingdom: John Libbey Eurotext. p.37-38.

Edwards, Simmon (2011,November). *Introduction to Inclusive Mobility*. Paper presented at Transport Operations Research Group (TORG) Workshop, Newcastle University, United Kingdom.

IBM Solving Africa's grand challenges. Retrieved March 18,2014, from www.research.ibm.com/articles/Africa.shtml

Innovations in Urban Mobility: Policy making and planning. A research report, European Commission (EU). Retrieved June 10,2014, from www.transport-research.info.

Litman, Todd (2014) What is Transportation Demand Management. Retrieved June 26,2014, from www.vtpi.org/tdm.

Massachusetts Institute of Technology (MIT) ***SENSEable City Laboratory***. Retrieved February 19,2014, from www.sensable.mit.edu.

Michell, Nick (2012) An Intelligent approach to Traffic Management. *Cities Today,* Issue 7, p 22.

Mobility for development: Facts and Trends. World Business Council for Sustainable Development (WBCSD), 2007, Switzerland. Retrieved March 3, 2014, from www.wbcsd.org. p. 3-5

Nigeria Telecommunication subscribers statistics. Retrieved June 1st, 2014 from www. ncc. gov. ng.

Oladimeji, M.S and Yussuf, MO (2013) Can the GSM Induce business activities in Nigeria? Evidence from P.Z (Cussons) Nigeria Plc. *Global Journal of Commerce and Management Perspective.* vol. 2 (3) , p 37-43.

Rogans, G. Randall and Simmons, Gary A. (1984). Teleconferencing. *Journal of Extension*. Vol. 22, No5.

Shaheen Susan A. and Christensen,Matthew (2014) Is the Future of Urban Mobility Multimodal and Digitized Transportation Access? *New Cities Foundation*. Retrieved April 25,2014, from www.newcitiesfoundation.org.

Telcos Adopt unified Price plans as Smartphones penetration rises. A ***Businessday*** news report cited by Nigeria Communication Commission (NCC). Retrieved May 30, 2014, from www.ncc.gov.ng.

The Virtual Mobility Knowledge Base: The impacts of ICT on travel behaviour and freight distribution patterns. A UK Department of Transport report.Retrieved June 16,2014, from http://www.virtual-mobility.com/

Xu, Annie (2012) Making smart cities a reality-today. *Cities Today,* Issue 7, p9.

UN Data. www.data.un.org.

Van Audenhove Francois-Joseph, Oleksii Korniichuck, Dauby Laurent and Pourbaix Jerome (2014), *The Future of Urban Mobility 2.0:Imperatives to shape extended mobility ecosystems of tomorrow.* Little D.Arthur. Retrieved April 14,2014, from www.adl.com/FUM2.0

PART 4 - E-GOVERNANCE AND PUBLIC PERFORMANCE

CHALLENGES

QUICK FACTS

POLICY POINTS

E-Participation Readiness in Developing Countries

Susanne Sonntagbauer

Cellent AG, Austria

Peter Sonntagbauer

Cellent AG, Austria

Abstract

The FUPOL research project has implemented a number of pilots in Europe, Asia and Africa. Its success has raised a lot of interest from countries around the world and it was considered necessary to elaborate a methodology, which provides a first assessment of success factors in a country for the implementation of E-Participation. Urban indices, the E-Government Indices of the United Nations, the Human Development Index and the Democracy Index have been analyzed to evaluate their capabilities to provide such a forecast. It is argued that a success indicator has to bear in mind two aspects, namely the general readiness of a political system to take citizen opinion into account and the technical capabilities. The UN E-Participation Index does not fully allow to forecast the potential success of an E-Participation project. The main reason is that it measures mainly technical sophistication of the participation tools and not the political readiness, and therefore additional parameters need to be considered.

Keywords: E-Participation, E-Governance, E-Government, FUPOL (Future Policy Modelling), E-Participation-Index, EIU Democracy Index, Human Development Index.

INTRODUCTION

Within the FUPOL project a number of pilots in Europe, Asia and Africa have been implemented successfully which has raised worldwide interest. Hence a new approach which provides success factors in a country for the implementation of E-Participation has to be designed to predict the outcome in advance. These indices must ideally be measured on an annual basis by an international organisation. They should provide a first insight to which extent a country fulfils the necessary preconditions to successfully implement the FUPOL software and methodology.

It has to be stated, that the focus of the book is urban E-Governance. This is why urban indices and data have been examined at the beginning to check their suitability.

The underlying assumptions are, that in order to implement E-Participation successfully the following is required:

- Technical capabilities and "E-infrastructure",
- Freedom of expression and the internet and
- Democratic processes, which allow that opinions expressed by citizens are taken into consideration in political decisions.

Therefore the first group of potential success factors to be evaluated include the technical capabilities and "E"-infrastructure of a country. In this context the ranking of E-Government and E-Participation by the UN is an important measurement to describe the "E"- efforts of a government.

The second and probably more important group of indicators measures the maturity of the democracy, the citizen centricity, the political ambition and the human resources of a country. Also the overall development level of countries plays an important role, because it somehow drives the citizens´ priorities. A well-known index in this domain is the Democracy Index of the EIU (Economist Intelligence Unit). The assessment of the Freedom House, describing the freedom status of a country, its internet and press have been considered too.

This article contains the following main structure, namely the:

- FUPOL project,
    - because it provides all relevant processes and ICT features for the implementation of E-Governance and E-Participations and
    - because it illustrates that technical readiness and political willingness, are essential for the success of an E-Governance and an E-participation project;
- Focus group developing countries,
    - because the regional scope has to be identified;
- Urban indices,
    - because they are required to underline the urban focus of the book;
- E-Government Indices of the United Nations, the Human Development Index, the EIU Democracy Index and the Freedom House Assessment,
    - because the urban indices are not suitable and
    - because they offer convergence for a specific country although they are on a national level;
- Potential usage of the indicators,
    - because the assessment of the success factors has to be further explained.

Or

Structure of the Chapter	Reason
FUPOL Project	it provides all relevant processes and ICT features for the implementation of E-Governance and E-Participations and
	it illustrates that technical readiness and political willingness, are essential for the success of an E-Governance and an E-participation project
Focus Group Developing Countries	to identify the regional scope
Urban Indices	to underline the urban focus of the book
E-Government Indeces of the United Nation, the Human Development Index, The EIU Democracy Index and the Freedom House Assesment	they provide the best approcimity for a country as the urban indices are not suitable
Potential Usage of Indices	to further outline and explain the assessment of the success factors

This chapter primarily targets policy makers, politicians, civil servants, interest groups and associations involved in influencing policy decisions, researchers dealing with E-Governance, E-Government, E-Democracy and E-Participation, experts in international organizations and development banks dealing with policy design, NGOs and consulting companies involved in governance, citizen participation, policy design and implementation projects and private sector companies.

SCOPE OF THE TOPIC

Before explaining and discussing the prosperity and success of E-Participation in developing countries, it has to be first explained what E-Government, E-Governance and E-Participation in this specific context means and which nations and regions are considered. The FUPOL project will be described next to explain the generic E-Governance process and technical features proposed. This is important to understand the subsequent section on potential success factors.

E-Government and E-Governance

E-Governance is synonymous with "electronic" or technology driven government. E-Governance is the application of information and communication technology to provide government services in a convenient and transparent manner. The target groups are citizens, the business sector and governments itself (COMESA, E-Government Portal).

E-Governance should not be mixed up with E-Government. E-Government is actually a narrower concept focusing on the development of specific services such as E-Procurement, E-Health, E-Tax and E-Participation. E-Government is a one-way protocol whereas E-Governance is a two-way-communication protocol. The essence of E-Governance is to reach the beneficiary and ensure that the services intended to reach the desired individual has been met with.

According to UNESCO E-Governance is "the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective" (UNESCO, 2014).

The FUPOL project encompasses the whole policy lifecycle combined with ICT features to support the E-Governance processes in a country which will be described afterwards.

E-Participation

E-Participation is the generally accepted term referring to "ICT-supported participation in processes involved in government and governance". The processes may refer to all types of public services and policy decision making. For United Nations Public Administration Network (UNPAN) is the promotion of the citizen participation the cornerstone of socially inclusive governance. The aim of all E-Participation activities should be the improvement of the citizen´s access to information and public services and the promotion of citizen´s participation in the policy decision making which impacts the well-being of the society and the individual" (United Nations e-Government Survey 2012. E-Government for People, 2012).

A more detailed definition from Macintosh sees E-Participation as "the use of information and communication technologies to broaden and deepen political participation by enabling citizens to connect with one another and with their elected representatives" (Macintosh, 2004). It has to be stated, that this definition includes as well as those of UNPAN all stakeholders in democratic decision-making processes, as for instance citizens, civil servants, political parties, interest groups, etc.

E-Participation processes may concern administration, public services, decision making and policy making. It is deemed important that the whole policy life cycle, beginning from the identification of a policy issue up to the monitoring and evaluation of the implementation of the measure has to be accompanied by E-Participation. By this means all relevant stakeholders, namely citizens, companies, civil servants, etc. are enabled to comment during the individual steps of the policy making process to improve the acceptance of the policy measure. This methodology is supported in the FUPOL project being described in the subsequent chapter.

FUPOL-Supported E-Governance and E-Participation in the urban context

The FUPOL project and its ICT features are described to create an understanding of ICT-supported e-governance and e-participation. FUPOL is a research project funded by the 7th framework program of the European Union with a budget of 9 Mio Euro. Its main research focus is concentrated on new technologies and methods for E-Governance, E-Participation and policy modelling in the urban context. The outstanding characteristic of FUPOL is the advanced policy lifecycle, which is divided in main- and subtasks. This detailed breakdown allows to link each task to various technical features.

The FUPOL Policy Lifecycle

The FUPOL policy lifecycle supports all levels of participation, such as

- "information", which is a one way communication where the government or the policy distributes information to the stakeholders;
- "consultation", which is a two way communications and allows feedback from the citizens and other stakeholders based on issues previously defined by the government;
- "active participation", which is a partnership cooperation between the government and all relevant stakeholders (citizens, companies). The stakeholders are involved in the decision making process, respectively in the design of the policy document, in the implementation and evaluation of the policy measures; and
- "passive participation", to find out the citizens opinions about specific topics by crawling of media, social media, blogs etc.

FUPOL policy process can be divided into the following generic stages, namely Agenda Setting, Analysis, Policy Formulation & Policy Creation, Decision Making, Policy Implementation and Policy Monitoring & Evaluation.

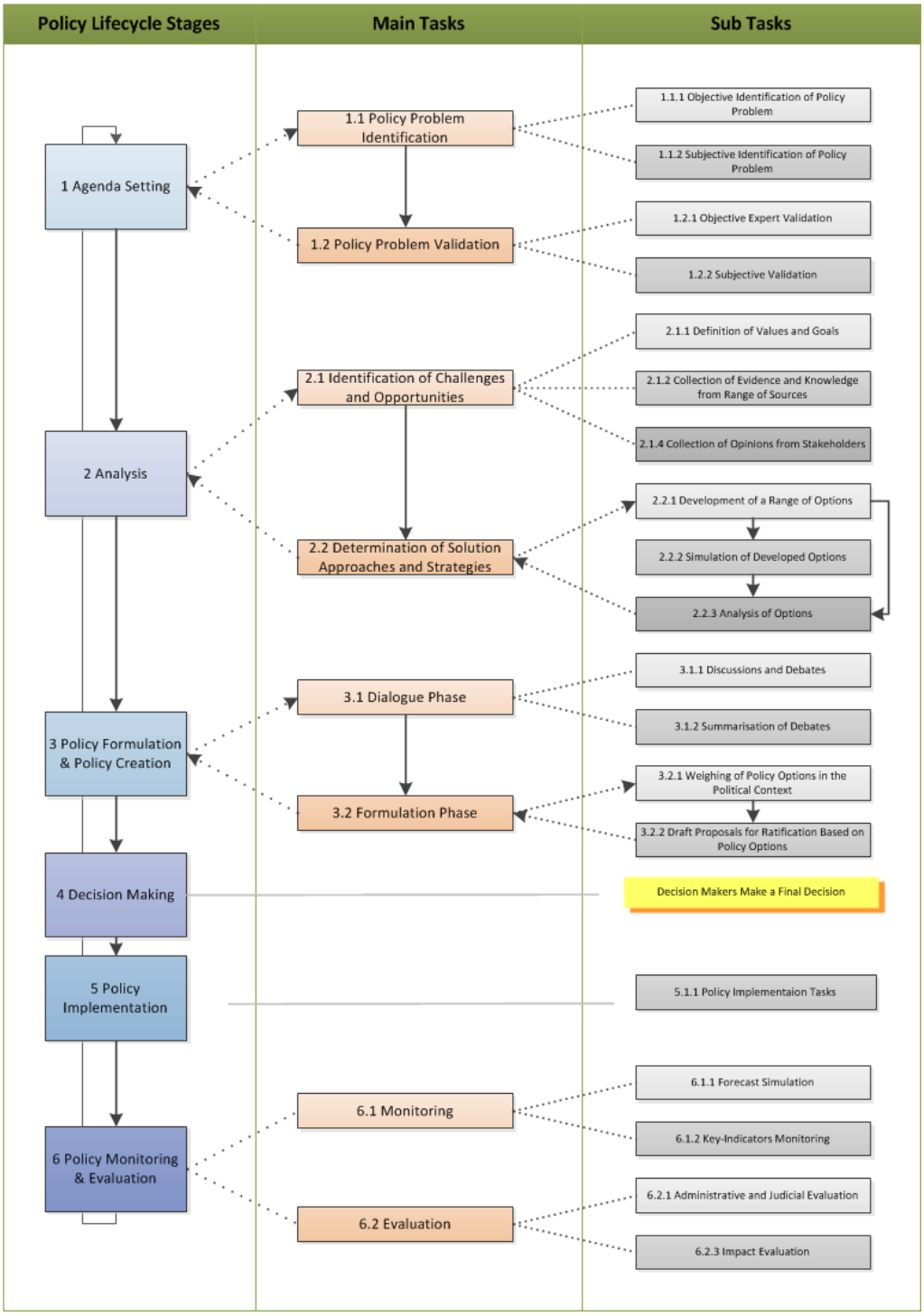


Figure 5 Overview FUPOL Policy Lifecycle

The Figure shows the overall process and the link between each stage of the Policy Lifecycle and its subdivision into single elements in relation to the main tasks and subtasks.

Major Phases of the Policy Life Cycle

A brief overview of the main stages of the FUPOL Policy Lifecycle is provided below.

Agenda Setting

Policy issues can be divided into two categories, namely those which are already on the public policy agenda, and those that are not. If an issue is already on the public-policy agenda, it has a sufficiently high profile, and a formal process to elaborate further on it is likely to be in place. If an issue is not on the public-policy agenda, electronic tools (among other channels) can be used to identify them quickly.

Analyse

The analyse stage is determined to identify the challenges and opportunities as well as the solution approaches linked to the identified policy problem. In the analysis-phase knowledge and evidence has to be collected from a broad variety of sources.

Policy Formulation & Policy Creation

It aims at drafting proposals for ratification based on policy options. This phase establishes a stakeholder dialogue for reaching a consensus based on the analysis of the options and finally chose among the various alternatives. In addition formal consultations, risk analysis and pilot studies, fine-tuning and evaluation of the intended policy in the current legal, organizational and political should guarantee a good workable policy document.

Decision Making

It is the domain of the policy decision maker

Policy Implementation

The implementation inspires little interest among the general public, unless it fails. That's why the implementation process should be accompanied by citizen participation to guarantee a transparent, cooperative and successful one.

The implementation tasks comprise all activities required to implement the policy. These tasks include the creation or provision of organisations and the establishment of regulatory and legal frameworks to support the actions. Hence implementation has many facets and therefore cannot be described extensively. It includes tasks such as budgetary measures, public relation actions, organisation changes and staff recruiting.

Policy Monitoring & Evaluation

This phase encompasses evaluation and review of the policy in action, research evidence and views of users. Afterwards there is the possibility to loop back to stage one.

Technology Features and their Assignment to Subtasks

The various FUPOL features and technologies, namely Data Integration and Storage, Unified Integrated User Interface, Policy Indicator Dashboard, Social network aggregation and single window display, Hot Topic Sensing & Topic Summarization, Community Feedback Platform, Visualization of statistical data, Visual social data analysis, Knowledge database and visualization, Outgoing Multichannel Social Media Single Window Messaging, Opinion Maps, Simulation and impact visualization and Visual Fuzzy Cognitive Maps can be used in several subtasks of the policy life cycle process.

These set of FUPOL software features represent a tool kit that support the integration and implementation of the overall Policy Lifecycle.

The table below contains an overview of the FUPOL features and their linkage to the whole FUPOL policy life cycle. It is deemed important to integrate E-Participation in the whole policy life cycle to enable stakeholder supported urban policy design.

Policy Life Cycle	Policy Indicator Dashboard	Social Network Aggregation and Single Window Display	Hot Topic Sensing & Topic Summari-zation	Opinion Maps	Knowledge Database and Visualization	Visual Social Data Analysis	Visual Fuzzy Cognitive Maps	Visualization of Statistical Data	Community Feedback Platform	Outgoing Multichannel Social Media Single Window Messaging	Simulation and Impact Visulaization
Agenda Setting (1)											
Policy Problem Identification (1.1)											
Objective Identification of Policy Problem (1.1.1)	X							X			
Subjective Identification of Policy Problem (1.1.2)		X	X	X		X					
Policy Problem Validation (1.2)											
Objective Expert Validation (1.2.1)					X			X			
Subjective Validation (1.2.2)		X	X			X					
Analysis (2)											
Identification of Challenges and Opportunities (2.1)											
Definition of Values and Goals (2.1.1)					X						
Collection of Evidence and Knowledge from a Range of Sources (2.1.2)					X			X			
Collection of Opinions from Stakeholders (2.1.3)		X		X		X					
Determination of Solution Approaches and Strategies (2.2)											
Development of a Range of Options (2.2.1)					X		X		X		
Simulation of Developed Options (2.2.2)											X
Analysis of Options (2.2.3)					X						
Policy Formulation & Policy Creation (3)											
Dialogue Phase (3.1)											
Discussions and Debates (3.1.1)		X		X		X			X	X	
Summarization of Debates (3.1.2)			X							X	
Formulation Phase (3.2)											
Weihing of Policy Options in the Political Conext (3.2.1)											
Draft Proposals for RatificationStage Based on Policy Options (3.2.2)											
Decision Making (4)											
Policy Implementation (5)											
Policy Implementation (5.1.1)		X	X	X					X	X	
Policy Monitoring & Evaluation (6)											
Monitoring (6.1)											
Forecast Simulation (6.1.1)											X
Key Indicators Monitoring (6.1.2)	X							X			
Evaluation (6.2)											
Administrative and Judicial Evaluation (6.2.1)											
Impact Evaluation (6.2.2)								X			

Table 1 Policy Lifecycle Subtasks and Assigned Technologies

Basic Conditions for successful E-Participation

- The FUPOL e-governance process described requires the following framework conditions to guarantee a successful E-Participation implementation, namely:
- Freedom of expression and the internet,
- Democratic processes, which allow that opinions expressed by citizens are taken into consideration in political decisions
- Technical capabilities and "E-infrastructure"

Some examples, why the above mentioned conditions are important are explained in the following section.

The **FUPOL ICT-features** Social Network Aggregation and Single Window Display, Hot Topic Sensing & Topic Summarization, Opinion Maps, Community Feedback Platform and Outgoing Multichannel Social Media Single Window Messaging **are entirely dependent on the freedom of internet**.

Social network aggregation, as for instance, is the process of collecting content from multiple services such as Facebook, Twitter, Blogspot or the FUPOL opinion map and pulling them together into a single location. This also includes the same channel with different accounts (e.g. facebook pages). The postings are displayed "single window", which means postings from various sources are displayed on the same screen. This feature is mainly used in the "Agenda Setting" Phase for the policy problem identification and verification, in the Analysis Phase and in the Policy Formulation and Creation Phase for discussions and debates.

Hot Topic Sensing and Topic Summarization is a web and social network analytics tool that analyses data from social networks and identify relevant topics and supports the FUPOL Policy Lifecycle in the Agenda Setting Phase, in the Policy Formulation and Creation Phase to summarize the debates and during the Policy Implementation Phase.

Opinion maps are interactive electronic maps which can be integrated into almost any internal or external web site and allow citizen to comment their opinions geo-referenced. The Opinion Maps support the Agenda Setting, the Analyse, the Policy Formulation & Creation and the Policy Implementation Phase.

The Community Feedback Platform is inspired by crowdsourcing platforms and is designed to enhance cognitive processes in a similar vein as traditional Idea Management Systems (IMS). The purpose of the system is to facilitate the idea analysis and selection processes. It supports the Analyse Phase to develop a range of options, the Policy Creation and Formulation Phase and the Implementation Phase.

Outgoing Multichannel Social Media Single Window Messaging is the capability of posting messages to various channels (social media targets) at the same time without the need to manually post to each site separately and is used in FUPOL´s Policy Creation and Formulation and in the Policy Implementation Phase.

The ICT tools demonstrated above **imply at least freedom of internet** to successfully implement an E-Participation project.

Democratic processes to allow opinion expression and **technical readiness** is required too. As a consequence all countries which lack these three parameters are not considered to implement prosperous E-Participation projects. Technical readiness means that the required technical infrastructure is available.

Focus Group Developing Countries

The whole chapter is focused on developing countries worldwide. Countries around the world are broadly classified into various categories based on their economic development. These categories are connected to a number of criteria ranging from per capita income to life expectancy and literacy rates. There is also some criticism regarding the term “developing country”, which implies inferiority compared to developed countries, which many countries refuse.

The United Nations have developed the Human Development Index, comprising the above mentions criteria, namely life expectancy, income and literacy rate for the ranking and comparison of the all countries worldwide. Countries with an HDI below 0.8 are generally considered as developing countries.

However it has to be mentioned that according to the United Nations Statistics Division “The designations "developed" and developing" are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process” (United Nations Statistics Division).

In addition in the Composition of Macro geographical (Continental) regions, geographical sub-regions, and selected economic and other grouping says

> “There is no established convention for the designation of "developed" and "developing" countries or areas in the United Nations system. In common practice, Japan in Asia, Canada and the United States in northern America, Australia and New Zealand in Oceania, and Europe are considered "developed" regions or areas. In international trade statistics, the Southern African Customs Union is also treated as a developed region and Israel as a developed country; countries emerging from the former Yugoslavia are treated as developing countries; and countries of eastern Europe and of the Commonwealth of Independent States (code 172) in Europe are not included under either developed or developing regions”. (Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings, 2013)

The so-called “developing countries” are mainly divided into the following categories, namely

- Newly industrialized countries (NIC), which are nations with economies more advanced and developed than those in the developing world. NIC countries are South Africa, Mexico, China, Indonesia, Malaysia, Brazil, India, Philippines, Thailand and Turkey (Newly Industrialized Countries, 2014).
- Emerging Markets (EM), is a term mainly used in the financial sphere. EMs are countries with an economy consistently and strongly developing over a longer period, which may be developed countries in the future, as for example Pakistan, Iran, much of South America, several of the Persian Gulf States and the ASEAN States (MSCI, 2014).
- Countries with an inconsistent record of development, which comprise around three quarters of all countries allocated to developing countries. This group comprises nearly most countries in Africa, Central America, the Caribbean, many countries of the arab world and a few countries form Southeast Asia (Laos and Cambodia) (Developing Countries) .

- Failed States, which are in general states with loss of control of its territory, long term civil war, breakdown of the legal system or dictatorship such as Afghanistan, Haiti, Somalia, Iraq, North Korea (Failed States Index 2013, 2014).

The United Nations have 193 member states. 53 are so-called "developed" countries and 140 are so-called developing countries with different levels of development. Hence four quarters of all UN-member countries are developing countries. The developing world comprises all countries in Africa, in Asia except Japan, South Korea, Hong Kong, Singapore, Qatar, Brunei and Bahrein, in Latin America except Chile and Argentine. Developing countries in Europe are Albania, Bosnia and Herzegovina, Serbia and The former Yugoslav Republic of Macedonia.

INDICES TO BE CONSIDERED

Urban Indices and Data

The scope of the book is urban E-Governance in developing countries. Hence we have examined the suitability of the following indices and statistical data for E-Governance in Cities.

City Prosperity Index, which is a composed index of the Productivity Index, the Quality of Life Index, the Infrastructure Index, the Environment Index and the Equity Index (UN-Habitat, 2013).

In the State of African Cities 2014 (UN-Habitat, The State of African Cities 2014. Re-imagining sustainable urban transitions, 2014) statistics about the trends of African Cities are provided, but they are not related to E-Governance.

United Nations Department of Economic and Social Affairs (UNDESA) allocates specific data about urban population trends (United Nations. Department of Economic and social Affairs).

UN-Habitat has started developing and testing an Urban Governance Index. It aims to measure the progress in urban governance. As a result of its complexity it has not been further developed.

The indices are not suitable, as they do not refer to urban E-Governance. Hence the following indices have been examined further. Despite the fact that they are on the national level, they provide the best approximation for a specific country.

E-Government Indices of the United Nations

Since 2003 The United Nations Public Administration Programme undertakes an annual survey on E-Government in member states. They are particularly useful for comparison because of their worldwide coverage. They are however based on self-assessment of member states (a questionnaire).

The Global E-Government Development Report and Survey presents an assessment of how governments use Information and Communications Technology (ICT) to provide access and inclusion for all. The survey aims to inform and improve the understanding of policy makers' choices in their E-Government program undertakings. It is a useful tool for government officials, researchers, and the representatives of civil society and the private sector to gain a deeper understanding of the relative position of a country vis-à-vis the rest of the world economies (United Nations e-Government Survey 2012. E-Government for People, 2012).

E-Government Development Index (EGDI)

The E-Government Development Index (EGDI) is "a composite measure of the capacity and willingness of countries to use E-Government for ICT-led development. The EGDI index has been updated annually by the United Nations Public Administration Programme (UNPAP) since its creation in 2003, covering all member states and focusses on the scope and quality of online services, on telecommunication connectivity and on human capacity (United Nations e-Government Survey 2012. E-Government for People, 2012).

Human Capital Index (HCI)

The Human Capital Index seeks to raise awareness of the factors that contribute to the development of a healthy and productive labor force. It is based on education, health & wellness, workforce & employment and enabling environment (United Nations e-Government Survey 2012. E-Government for People, 2012).

Telecommunication Infrastructure Index (TII)

According to the United Nations the telecommunication infrastructure index is based on six primary indices, which represent the ICT infrastructure of a country, as for instance PC's/1000 persons, internet users/1000 persons, telephone lines/1000 persons, online population, mobile phones/1000 persons and TV's/1000 persons. Data are collected form the UN International Telecommunication Union (ITU) and the UN Statistics Division, supplemented by the World Bank (United Nations e-Government Survey 2012. E-Government for People, 2012) .

Online Service Index (OSI)

The OSI takes into consideration the country´s websites, including the nation portal, e-services portal and E-Participation portal, as well as the websites of the related ministries of education, labour, social services, health, financial and environment (United Nations e-Government Survey 2012. E-Government for People, 2012).

E-Participation Index (EPI)

For United Nations Public Administration Network the E-Participation index (EPI) is a measure which focuses on "the use of online services to facilitate provision of information by government to citizens ("e-information sharing"), interaction with stakeholders (e-consultation" and engagement in decision-making processes ("e-decision making")" (United Nations e-Government Survey 2012. E-Government for People, 2012). As such it includes the capacity and the willingness of the government to encourage its citizen to participate in the decision making process. A country's E-Participation Index value totally reflects how useful these features are and how well they have been deployed by the government compared to all other countries. The purpose of this measure is not to prescribe any particular practice, but rather to offer insight into how different countries are using online tools to promote interaction between citizen and government, as well as among citizens, for the benefit of all (United Nations e-Government Survey 2012. E-Government for People, 2012).

Human Development Index (HDI)

The UN has developed the Human Development Index (HDI) together with the Human Development Report (HDR) in 1990. The HDI is the index used by the United Nations by combining indicators of life expectancy, educational attainment and income into a composite human development index (Human Development Report 2013. The Rise of the South: Human Progress in a Diverse World, 2013).

Health or life expectancy at birth is measured in the HDI using a minimum of 20 years and a maximum value of 83.57. In a country, where the life expectancy at birth is 55 years, the longevity component will be 0.551 (Human Development Report 2013. The Rise of the South: Human Progress in a Diverse World, 2013).

The education component of the HDI is measured by mean years of schooling for adults aged 25 years and expected years of schooling for children of school entering age.

The standard of living is measured by Gross National Income per capita (GNI) per capita ($ PPP) instead of GDP per capita ($ PP) (Human Development Report 2013. The Rise of the South: Human Progress in a Diverse World, 2013).

Other "soft" development factors such as political freedom and personal security are deemed important too. But they are not included in the HDI, they are considered in the EIU Democracy Index.

The latest index was released in 2013 and covers the period up to 2012. 47 countries have an index – which is ranked from 0 to 1 – above 0.8 are specified as developed countries.

EIU Democracy Index

The Democracy Index is an index compiled by the Economist Intelligence Unit, that measures the state of democracy in 167 countries, of which 166 are sovereign states and 165 are United Nations member states. The index is based on 60 indicators grouped in five different categories, as for instance electoral process and pluralism, civil liberties, functioning of government, political participation, and political culture. In addition to a numeric score and a ranking, the index categorizes countries as one of four regime types, as for instance full democracies, flawed democracies, hybrid regimes, and authoritarian regimes. The index was first produced for 2006, with updates for 2008, 2010, 2011, and 2012 (Kekic, 2012).

The index values are used to place countries within one of four types of regimes, as for instance a) Full democracies, b) Flawed democracies, c) Hybrid regimes and d) Authoritarian regimes (Democracy Index 2012. Democracy at a Stillstand, 2012) .

Most answers are "experts' assessments". The report does not indicate what kinds of experts, nor their number, nor whether the experts are employees of the Economist Intelligence Unit or independent scholars, nor the nationalities of the experts. Some answers are provided by public-opinion surveys from the respective countries. In the case of countries for which survey results are missing, survey results for similar countries and expert assessments are used in order to fill in gaps. However this index has been selected as it has a worldwide coverage regarding civil liberties and democray which is the cornerstone of a successful implementation of E-Governance and E-Participation.

Freedom House Assessment

Freedom House is an independent organization dedicated to the expansion of freedom around the world. It was founded in 1941 by a group of prominent individuals, including journalists, scholars and politicians. Eleonore Rooosevelt served as honorary co-chairperson. Freedom House "supports non-violent civic initiatives in societies where freedom is denied or under threat and promotes the right of all people to be free" (Freedom House).

Freedom House publishes a yearly survey and report, called "Freedom in the World" that attempts to measure the degree of democracy and political freedom worldwide. The survey ratings and narrative

reports on 195 nations and 14 related and disputed territories are used by policymakers, civic activists, international organisations and the press to monitor the developments on an international basis (Puddington, 2014) . The Freedom House Assessment has been chosen as it has a worldwide coverage and a it is the only one addressing freedom of internet which is deemed important for the implementation of E-Governance.

Freedom of the World distinguishes free, partly free and not free nations based on Political Rights and Civil Liberties with a specific focus on press and internet freedom. The number of countries designated by Freedom in the World as Free in 2013 stood at 88 (marked in green), as Partly Free at 59 countries (marked in yellow) and as Not Free at 48 countries (marked in purple) in the Figure below (Puddington, 2014).

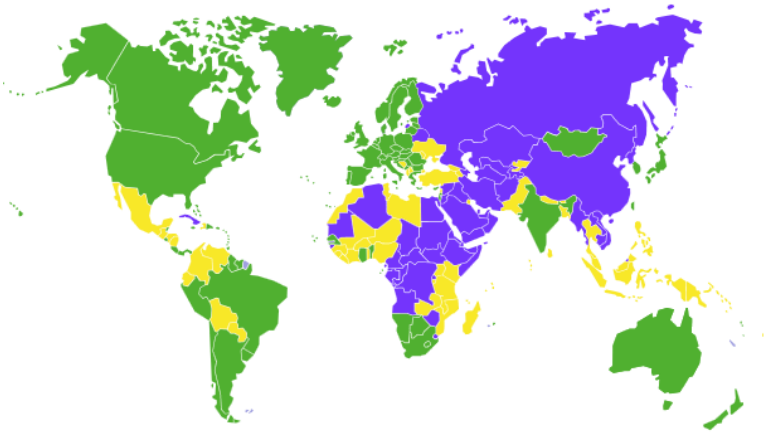


Figure 6 Status of Freedom Worldwide

POTENTIAL USAGE OF INDICES AS E-PARTICIPATION SUCCESS FACTORS

In this chapter at hand the potential suitability of indicators and combinations thereof will be outlined to predict a successful worldwide implementation of E-Participation.

The first assumption is that the EIU participation index (Democracy Index) measures the overall maturity of political participation processes in a country, regardless of their support through electronic or conventional means.

The second assumption is that the UN E-Participation Index somehow measures the successful implementation of E-Participation in a country and therefore could be used as a first indication, whether the FUPOL software and methodology can be successfully implemented.

Indices in the Developing Countries and Worldwide Average

The tables below, one based on the UN E-Government Survey 2012 and one based on the UN E-Government Survey 2014 (United Nations e-Government Survey 2014. E-Government for the Future we want, 2014), show a comparison of the UN E-Government Indices between the developing countries (140 countries) with the world (193 countries).

Significant differences between the developing countries and the world are regarding infrastructure and E-Participation for which the indices differ by 62% in the year 2012. In the year 2014 both indexes have increased. The average E-Participation Index for the developing countries shows a crucial improvement, especially compared to the worldwide E-Participation Index. The difference has been reduced from 62 to 26 per cent. But it is needless to say that the E-Participation index is quite low both on a worldwide and on a developing country based level.

The most significant shortcoming of the developing countries is the infrastructure which is expressed by a difference of still 52 per cent.

The other indices differ between 11 and 27 per cent in 2012 and between 12 and 34 per cent in 2014.

The figures show very high indices regarding human capital and human development for development countries and the whole world.

2012							
	e-Government Development	Online Service	Human Capital	Infrastructure	e-Participation	Average UN e-Governm. Indices	HDI
Average Developing Copuntries	0,39	0,35	0,64	0,20	0,14	0,34	0,59
Average World	0,49	0,44	0,71	0,32	0,22	0,44	0,67
Difference	-25%	-27%	-11%	-62%	-62%	-27%	-14%

Table 2 Difference Developing Countries and World for UN E-Government Indices 2012

2014							
	e-Government Development	Online Service	Human Capital	Infrastructure	e-Participation	Average UN e-Governm. Indices	HDI
Average Developing Copuntries	0,37	0,29	0,58	0,24	0,31	0,36	0,60
Average World	0,47	0,39	0,66	0,37	0,39	0,46	0,67
Difference	-27%	-34%	-12%	-52%	-26%	-26%	-12%

Table 3 Difference Developing Countries and World for UN E-Government Indices 2014

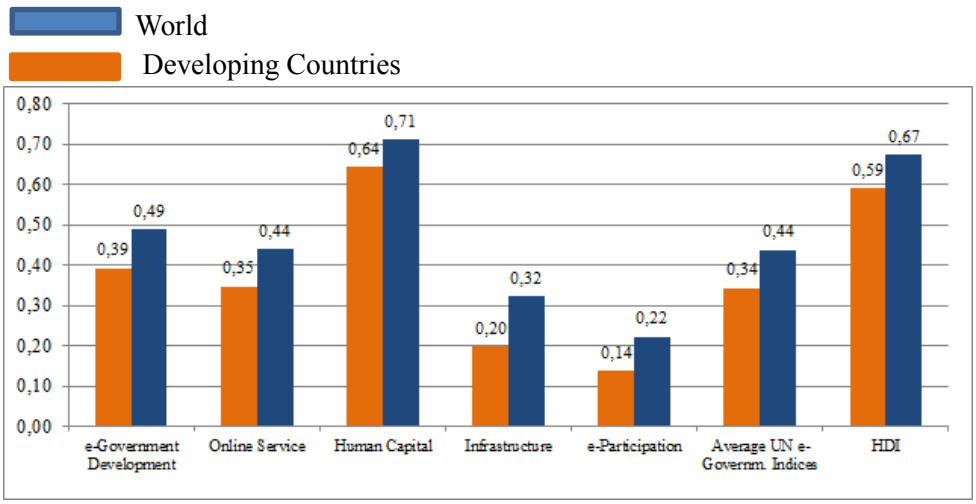


Figure 7 E-Government Development Index 2012

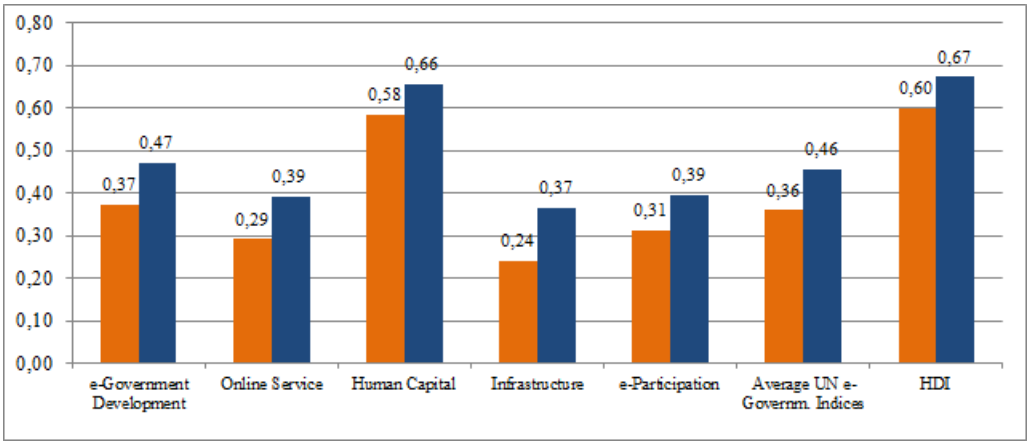


Figure 8 E-Government Development Index 2014

The democracy indicators show a similar picture. The overall difference between the developing countries and all UN-member state countries is significant and amounts between 13 and 21 %, with the highest difference regarding Functioning of Government.

2012						
	Electoral Process	Functioning of Government	Participation	Political Culture	Civil Liberties	Democracy Index (Overall EIU Ranking)
Average Developing Copuntries	4,99	4,08	4,24	4,86	5,30	4,69
Average World	5,96	4,95	4,78	5,48	6,15	5,46
Difference	-19%	-21%	-13%	-13%	-16%	-16%

Table 4 Difference Developing Countries and World for EIU Democracy Index

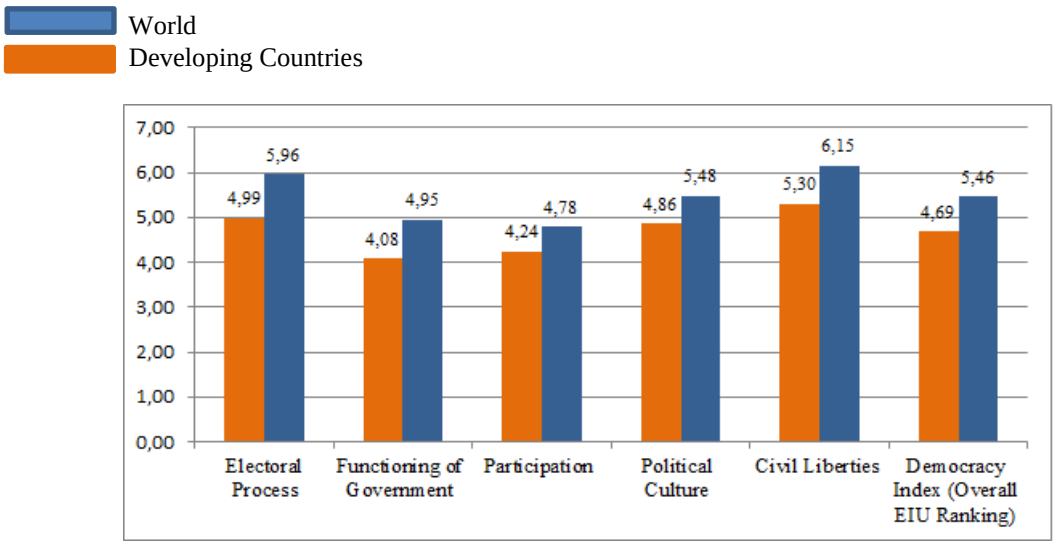


Figure 9 Democracy Index 2012

An interesting insight reveals a look at the average of both indicator groups. The difference in the UN "e-Indicators" is much higher than in the EIU Democracy Index between the developing countries and the

world, which is mainly based on the lack of infrastructure in the developing countries in 2012 and 2014. *But the difference between the developing countries and the world in 2012 and 2014 is nearly the same.*

	2012		2014	
	Overall EIU Ranking	UN e-Government Indices Average	Overall EIU Ranking	UN e-Government Indices Average
Developing Countries	4,69	0,34	4,69	0,36
World	5,46	0,44	5,46	0,46
	-16,40%	-27,14%	-16,40%	-26,48%

Table 5 Comparison Developing Countries - World

The EIU Democracy Index and Freedom House Assessment

24 Top Ranked Countries Worldwide

The top 24 countries ranked by the index are listed below. The data are derived from the Democracy Index 2012 (Democracy Index 2012. Democracy at a Stillstand, 2012). The assessment of the Freedom House regarding the freedom of the press and the internet are specified too. (Freedom House Regions).

	EIU-Index 2012		Freedom House Index 2014			EIU-index 2012		Freedom House Index 2014	
Country	**Internet**	**Rank**	**Press**	**Internet**	**Country**	**Index**	**Rank**	**Press**	**Internet**
Norway	9,9300	1	F	F	Ireland	8,5600	13	F	F
Sweden	9,7300	2	F	F	Germany	8,3400	14	F	F
Iceland	9,6500	3	F	F	Malta	8,2800	15	F	F
Denmark	9,5200	4	F	F	United Kingdom	8,2100	16	F	F
New Zealand	9,2600	5	F	F	Czech Republic	8,1900	17	F	F
Australia	9,2200	6	F	F	Mauritius	8,1700	18	F	F
Switzerland	9,0900	7	F	F	Uruguay	8,1700	18	F	F
Canada	9,0800	8	F	F	Republic of Korea	8,1300	20	PF	PF
Finland	9,0600	9	F	F	USA	8,1100	21	F	F
Netherlands	8,9900	10	F	F	Costa Rica	8,1000	22	F	F
Luxembourg	8,8800	11	F	F	Japan	8,0800	23	F	F
Austria	8,6200	12	F	F	Belgium	8,0500	24	F	F

Table 6 EIU Democracy Index and Freedom House Assessment-24 first Ranked Countries Worldwide

The **ranking appears reasonable as a starting point to evaluate the potential** success of FUPOL in a country. However there are a few shortcomings of the democracy index. The major shortcoming is that the methodology is based on experts and surveys. While it is relatively easy to verify whether a specific E-Government component is really available this is more difficult in the case of actual citizen participation in decision making, democracy or civil rights. In some countries, laws describing processes and regulations could provide a good governance framework in theory, but the reality on the ground may be quite different. Consequently indices have to rely partly on expert assessments, which could be biased or on the surveys measuring the public perception. Again the latter could be wrong, because typically it is not based on hard facts.

In 2012 only 2 developing countries, namely Costa Rica and Uruguay are ranked under the top 24, as the majority of developing countries have hybrid or authoritarian regimes with limited press and internet freedom.

24 First Ranked Developing Countries

	EIU-Index 2012		Freedom House Index 2014			EIU-index 2012		Freedom House Index 2014	
Country	**Internet**	**Rank**	**Press**	**Internet**	**Country**	**Index**	**Rank**	**Press**	**Internet**
Uruguay	8,1700	18	F	F	Indonesia	6,7600	48	PF	PF
Costa Rica	8,1000	21	F	F	Lesotho	6,6600	50	PF	F
Cape Verde	7,9200	25	F	F	Suriname	6,6500	51	F	F
Botswana	7,8500	27	PF	F	Columbia	6,6300	52	PF	PF
South Africa	7,7900	28	PF	F	Thailand	6,5500	53	NF	PF
Chile	7,5400	32	PF	F	Dominican Republic	6,4900	55	PF	F
India	7,5200	34	PF	PF	El Salvador	6,4700	56	PF	F
Timor-Leste	7,1600	39	no data	no data	Peru	6,4700	56	PF	F
Brazil	7,1200	40	PF	PF	Malaysia	6,4100	57	NF	PF
Panama	7,0800	41	PF	F	Mongolia	6,3500	58	F	F
Trinidad and Tobago	6,9900	43	F	F	Serbia	6,3300	59	F	F
Mexico	6,9000	46	NF	PF	Papua New Guinea	6,3200	60	F	F
F=Free, PF=Partly Free, NF=Not Free									

Table 7 Democracy Index and Freedom House Assessment - 24 First Ranked Developing Countries

The developing countries, which have mainly featured by hybrid and authoritarian regimes are ranked from 18 to 60 in the Democracy Index. Only eight of the 24 top ranked developing countries have unlimited internet access and press freedom which is a crucial barrier for a successful E-Participation project.

The UN E-Participation Index and the Freedom House Assessment

Top Ranked Countries Worldwide

The table shows the top 24 countries ranked by the E-Participation Index from the UN E-Government Survey 2012 (United Nations e-Government Survey 2012. E-Government for People, 2012) and the UN E-Government Survey 2014 (United Nations e-Government Survey 2014. E-Government for the Future we want, 2014). The countries are linked with the press and internet freedom as outlined in the data pool of the Freedom House (Freedom House Regions).

	e-Particip. 2012		EIU	Freedom House Index 2014			e-Particip. 2012		EIU	Freedom House Index 2014	
Country	**Internet**	**Rank**	**Rank**	**Press**	**Internet**	**Country**	**Index**	**Rank**	**Rank**	**Press**	**Internet**
Netherlands	1,0000	1	10	F	F	United Arab Emirates	0,7368	6	130	NF	NF
Republic of Korea	1,0000	1	19	PF	PF	Norway	0,6842	7	1	F	F
Singapore	0,9474	2	71	PF	PF	Sweden	0,6842	7	2	F	F
Kazakhstan	0,9474	2	124	NF	NF	Canada	0,6842	7	8	F	F
United Kingdom	0,9211	3	16	F	F	Egypt	0,6842	7	93	NF	PF
United States of America	0,9211	3	20	F	F	Chile	0,6579	8	32	PF	PF
Israel	0,8947	4	33	F	F	Russian Federation	0,6579	8	105	NF	PF
Australia	0,7632	5	6	F	F	Bahrain	0,6579	8	131	NF	NF
Germany	0,7632	5	14	F	F	Qatar	0,6316	9	119	NF	NF
Estonia	0,7632	5	31	F	F	Saudi Arabia	0,6316	9	143	NF	NF
Finland	0,7368	6	9	F	F	Mongolia	0,6053	10	58	F	F
Japan	0,7368	6	22	F	F	New Zealand	0,5789	11	5	F	F
Colombia	0,7368	6	52	PF	PF	France	0,5789	11	26	F	F
F=Free, PF=Partly Free, NF=Not Free											

Table 8 UN E-Participation Index 2012 and Freedom House Assessment – 24 Top Ranked Countries Worldwide

	e-Particip. 2014		EIU	Freedom House Index 2014			e-Particip. 2014		EIU	Freedom House Index 2014	
Country	**Internet**	**Rank**	**Rank**	**Press**	**Internet**	**Country**	**Index**	**Rank**	**Rank**	**Press**	**Internet**
Netherlands	1,0000	1	10	F	F	Bahrain	0,8235	10	131	NF	NF
Republic of Korea	1,0000	1	19	PF	PF	Canada	0,8235	10	8	F	F
Uruguay	0,9804	2	18	F	F	Costa Rica	0,8235	10	21	F	F
France	0,9608	3	26	F	F	Greece	0,8039	11	30	F	F
Japan	0,9608	3	22	F	F	Morocco	0,8039	11	89	NF	PF
UK	0,9608	3	16	F	F	Italy	0,7843	12	29	F	F
Australia	0,9412	4	6	F	F	New Zealand	0,7843	12	5	F	F
Chile	0,9412	4	32	PF	PF	Spain	0,7843	12	23	F	F
USA	0,9216	5	20	F	F	Estonia	0,7647	13	41	F	F
Singapore	0,9020	6	71	PF	PF	Kazakhstan	0,7647	13	124	NF	NF
Colombia	0,8824	7	52	PF	PF	Brazil	0,7059	14	40	PF	PF
Israel	0,8627	8	33	F	F	Finland	0,7059	14	9	F	F
United Arab Emirates	0,8431	8	130	NF	NF	Germany	0,7059	14	14	F	F
F=Free, PF=Partly Free, NF=Not Free											

Table 9 UN E-Participation Index 2014 and Freedom House Assessment – 24 Top Ranked Countries Worldwide

The ranking in both tables contains a number of authoritarian regimes (marked in orange) and hybrid regimes (marked in yellow), such as Kazakhstan, United Arab Emirates, Saudi Arabia, Russian Federation, Bahrain, Qatar, Morocco and Egypt, in which by definition democratic processes are not fully implemented and citizen participation is difficult. Likewise in some countries there is no freedom of press or internet.

Therefore the ranking of the UN-E-Participation does not allow **to forecast the potential success** of an E-Participation project, since a successful E-Participation project implies that

- Citizens as well as media can freely express their opinion

- The internet as the main channel of "E"-Participation is not censored or restricted in any way
- Democratic processes are in place, which allow that opinions expressed by citizens are taken into consideration in political decisions.

The UN indices and also the EIU index (up to 2010) are measuring mainly technical sophistication and availability of government online services. More technical sophistication yields a better score. The actual impact on government processes, methods, and policies is not taken into account. This means in the case of E-Participation it is not considered, whether

- the results obtained by the "E" tools are really being used in the policy design process and/or
- the participation of citizens in the decision making process has really improved after certain "E" – tools have been introduced.

While the practical impact of some benchmarks to push investment in countries lagging behind, the scientific value of E-Government benchmarking in general and specifically E-Participation indices is questionable. Do they really provide an accurate measurement?

Apart from the weaknesses already mentioned, the actual "take-up" by citizens is not adequately measured. In the case of E-Participation this would mean for example a standard definition and comparable figures, which percentage of the population has been actively engaged through "e" – means in policy design and decisions. Likewise another weakness of many E-Government benchmarks is also their major focus on national government. Specifically for participative processes this is a major shortcoming since many initiatives take place in a city or municipality. The national government may not even be aware of them. Consequently information provide by national governments may be incomplete.

Top Ranked Developing Countries

The table shows the top 24 developing countries ranked by the E-Participation Index from the UN E-Government Survey 2012 (United Nations e-Government Survey 2012. E-Government for People, 2012) and the UN E-Government Survey 2014 (United Nations e-Government Survey 2014. E-Government for the Future we want, 2014). The countries are linked too with the Freedom House assessment regarding press and internet freedom. (Freedom House Regions).

	e-Particip. 2012		Freedom House Index 2014			e-Particip. 2012		Freedom House Index 2014	
Country	**Internet**	**Rank**	**Press**	**Internet**	**Country**	**Index**	**Rank**	**Press**	**Internet**
Kazakhstan	0,9474	2	NF	NF	Republic of Moldova	0,3947	18	NF	NF
Colombia	0,7368	6	PF	PF	Tunisia	0,3684	19	PF	PF
Egypt	0,6842	7	NF	PF	Ethiopia	0,3421	20	NF	NF
Russian Federation	0,6579	8	NF	NF	Costa Rica	0,3158	21	F	F
Saudi Arabia	0,6316	10	NF	NF	Lebanon	0,3158	21	PF	PF
Mongolia	0,6053	11	F	F	Panama	0,3158	21	PF	F
Mexico	0,5789	12	NF	PF	Thailand	0,3158	21	NF	PF
El Salvador	0,5526	13	PF	F	Kyrgyzstan	0,2895	22	NF	PF
Brazil	0,5000	15	PF	PF	Venezuela	0,2632	23	NF	PF
Malaysia	0,5000	15	NF	PF	Cape Verde	0,2368	24	F	F
Dominican Republic	0,4737	16	PF	F	Ecuador	0,2368	24	NF	PF
Morocco	0,3947	18	NF	PF	Guatemala	0,2368	24	PF	PF
Peru	0,3947	18	PF	F	Serbia	0,2368	24	F	F
F=Free, PF=Partly Free, NF=Not Free									

Table 10 UN E-Participation Index 2012 and Freedom House Assessment - 24 Top Ranked Developing Countries

	e-Particip. 2014		EIU	Freedom House Index 2014			e-Particip. 2014		EIU	Freedom House Index 2014	
Country	**Internet**	**Rank**	**Rank**	**Press**	**Internet**	**Country**	**Index**	**Rank**	**Rank**	**Press**	**Internet**
Uruguay	0,9804	2	18	F	F	Republic of Moldova	0,6275	17	60	NF	NF
Colombia	0,8824	7	52	PF	PF	El Salvador	0,6078	18	56	PF	F
Costa Rica	0,8235	10	21	F	F	Mexico	0,6078	18	46	NF	PF
Morocco	0,8039	11	98	NF	PF	Georgia	0,5882	20	79	PF	F
Kazakhstan	0,7647	13	124	NF	NF	Philippines	0,5686	21	61	PF	F
Brazil	0,7059	14	40	PF	PF	Saudi Arabia	0,5686	21	144	NF	NF
Peru	0,7059	14	56	PF	F	Venezuela	0,5686	21	81	NF	PF
Mongolia	0,6863	15	58	F	F	Egypt	0,549	22	93	NF	PF
Russian Federation	0,6863	15	105	NF	NF	Thailand	0,549	22	53	NF	PF
China	0,6471	16	123	NF	NF	Albania	0,5294	23	77	PF	PF
Sri Lanka	0,6471	16	76	NF	PF	Armenia	0,5294	23	97	NF	F
Tunisia	0,6471	16	77	PF	PF	Malaysia	0,5294	23	57	NF	PF
India	0,6275	17	35	PF	PF	Antigua and Barbuda	0,5098	24	152	PF	F
F=Free, PF=Partly Free, NF=Not Free											

Table 11 UN E-Participation Index 2014 and Freedom House Assessment - 24 Top Ranked Developing Countries

The developing countries are high ranked in both tables – the ranking of the E-Participation Index is between 2 and 24 although the majority of these countries have limited citizen rights and limited internet and press freedom. These restrictions are also reflected in the EIU Index. Five of the 24 top ranked developing countries are featured by "Not Free" internet access. This is a major barrier in the E-Participation process, since a successful E-Participation project demands for a free internet which is not restricted or censored.

Dependencies between Components of the UN E-Participation Index, the HDI and the EIU Democracy Index – Global view

In order to further analyze the dependencies between the various indicators cross correlations have been calculated. Orange means a correlation higher than 0,60, light orange between 0,50 and 0,60 and blue less than 0,50

	e-Government Development	Online Service	Human Capital	Infra-structure	e-Participation	HDI
Overall EIU Ranking	0,66	0,60	0,51	0,69	0,44	0,59
Electoral Process	0,52	0,46	0,41	0,55	0,31	0,45
Functioning of government	0,68	0,66	0,52	0,68	0,49	0,60
Participation	0,61	0,52	0,51	0,62	0,39	0,55
Political Culture	0,59	0,54	0,42	0,65	0,43	0,53
Civil Liberties	0,57	0,52	0,45	0,59	0,36	0,52
HDI	0,80	0,71	0,71	0,73	0,56	1,00

Table 12 Dependencies UN E-Participation Index, HDI and EIU Democracy Index 2012

	e-Government Development	Online Service	Human Capital	Infra-structure	e-Participation	HDI
Overall EIU Ranking	0,64	0,55	0,57	0,66	0,54	0,59
Electoral Process	0,50	0,41	0,46	0,51	0,43	0,45
Functioning of Government	0,67	0,61	0,58	0,66	0,59	0,60
Participation	0,59	0,48	0,55	0,60	0,45	0,55
Political Culture	0,59	0,50	0,50	0,64	0,46	0,53
Civil Liberties	0,56	0,47	0,51	0,57	0,48	0,52
HDI	0,81	0,68	0,77	0,73	0,76	1,00

Table 13 Dependencies UN E-Participation Index, HDI and EIU Democracy Index 2014

There is indeed a significant correlation between all indicators, well above the required significance level at 1% (0,18). Interestingly the highest correlation is between the HDI and the UN "e"-indices infrastructure and various indictors of the democracy index. In 2012 **E-Participation had a correlation below 0,50 to all democracy indicators, except the HDI**. In 2014 this correlation has improved, but up to now the indicator does not measure how an offered E-Participation infrastructure is actually used by the population and how it is linked to the actual policy design and decision process.

Future Research or Operational Directions

Future Research should focus on the development and further development of the existing UN-Habitat Urban Governance Index, which aims to measure the extent and progress in urban governance and urban E-participation.

This enhanced urban index should be tested in bigger cities and smaller ones on a sample basis. To determine E-Readiness and especially E-Participation Readiness for the whole policy process the whole FUPOL policy life cycle and its ICT features could be integrated in the City Questionnaire. The usage of ICT tools per subtask should be specified by the cities themselves.

Future Research should consider actual projects implemented in a country and their success because this is the only real evidence that an indicator or a set of indicators are a good measurement for the outcome of en E-Participation project.

Field research is deemed essential to further improve and validate the E-Participation Indices.

CONCLUSION

The objective of this paper was to identify indicators on the urban level, which provide a first assessment of success factors in a country for the implementation of E-Participation to predict the potential of E-Participation projects in developing countries. It is argued that a success indicator has to take into account three aspects, the general readiness of a political system to take citizen opinion into account, freedom of expression and the technical capabilities.

Unfortunately the examined urban data and indices are not suitable as they do not refer to urban E-Governance and E-Participation. Consequently the E-Government Indices of the United Nations, the EIU Democracy Index and the Indices of the Freedom House have been analyzed to evaluate their capabilities to provide such a forecast. They provide the best approximation for a specific country despite the fact that they are on the national level.

It has been found that the E-Participation Index is quite low both in developing countries and on a worldwide basis, which means this is the **least developed domain of E-Government.** The democracy indicators show a similar picture.

The ranking of the UN E-Participation Index does not fully allow to forecast the potential success of an E-Participation project. The main reason is that the UN E-Participation Indices are measuring mainly technical sophistication and availability of government online services and not the political readiness. For an assessment of the potential success a combined set of indices consisting of the UN E-Participation Index and other indices such as the EIU and the Freedom House assessment are required. Additionally the actual E-Participation projects implemented should be involved in the UN survey and considered in the calculation of the E-Participation index.

REFERENCES

COMESA, E-Government Portal. (n.d.). Retrieved from http://egov.comesa.int/index.php/e-government-resouces/31.

Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings. (2013, 10 31). Retrieved 07 03, 2014, from United Nations Statistics Division: http://unstats.un.org/unsd/methods/m49/m49regin.htm#ftnc

(2012). *Democracy Index 2012. Democracy at a Stillstand.* Economist Intelligence Unit.

Developing Countries. (n.d.). Retrieved 07 03, 2014, from Wikipedia: http://en.wikipedia.org/wiki/Developing_country

Failed States Index 2013. (2014, 06 22). Retrieved from http://ffp.statesindex.org/rankings-2013-sortable

Freedom House. (n.d.). Retrieved 06 24, 2014, from http://freedomhouse.org/about-us#.U6lyjE2KCpo

Freedom House Regions. (n.d.). Retrieved 06 21, 2014, from http://www.freedomhouse.org/regions#.U6qy302KAmc.

(2013). *Human Development Report 2013. The Rise of the South: Human Progress in a Diverse World.* New York: United Nations Developmen Programme.

Kekic, L. (2012). *The Economist Intelligence Unit´s Index of Democracy. The World in 2007.* 2007: The Economist Intelligence Unit.

Macintosh, A. (2004). Characterizing e-participation in Policy Making. *Proceedings of the Thirty-Seventh annual Hawaii International Conference on System Sciences (HICSS-37).* Hawaii.

Macintosh, A. (2004). *Using Information and Communication Technologies to Enhance Citizen Engagement in the Policy Process.* OECD Publishing.

Malik, K. (2013). *Human Development Report 2013. The Rise of the South. Human Progress in a Diverse World.* New York: United Nations Development Programme.

MSCI. (2014, 07 03). Retrieved from MSCI Emerging Markets Indexes.

Newly Industrialized Countries. (04. 07 2014). Von Wikipedia: http://en.wikipedia.org/wiki/Newly_industrialized_country abgerufen

Puddington, A. (2014). *Freedom House.* Von Freedom in the World: http://freedomhouse.org/sites/default/files/Freedom%20in%20the%20World%202014%20Booklet.pdf abgerufen

UNESCO. (20. 06 2014). Von http://portal.unesco.org/ci/en/ev.php-URL_ID=3038&URL_DO=DO_TOPIC&URL_SECTION=201.html abgerufen

UN-Habitat. (2013). *State of the World´s Cities 2012/2013. Prosperity of Cities.* New York: Rothledge.

UN-Habitat. (2014). *The State of African Cities 2014. Re-imagining sustainable urban transitions.* Nairobi: UN-Habitat.

(2012). *United Nations e-Government Survey 2012. E-Government for People.* New York: United Nations.

(2014). *United Nations e-Government Survey 2014. E-Government for the Future we want.* New York: United Nations.

United Nations Statistics Division. (n.d.). Retrieved 07 03, 2014, from Standard Country or Area Codes for Statistical Use: http://unstats.un.org/unsd/methods/m49/m49.htm

United Nations. Department of Economic and social Affairs. (n.d.). Retrieved 07 24, 2014, from http://esa.un.org/unpd/wup/CD-ROM/Default.aspx

Does 'E' mean Efficiency?

Prakash Vernica

TERI University, New Delhi, India

Abstract

There is an increased dependency on technology for all functions in today's world; with governance of countries being no exception to it. The objective of this paper is to critically analyse the efficiency of a technology intensive governance system in a developing nation like India which has a rural population of 70%. It is the perception of the users that determines the success or failure of a particular system. Hence, to answer the question posed above, one needs to understand the psyche and approach of the various typology of population towards e-governance. The current model of e-governance is a system that was designed for the western world. This is the reason why it worked well there. However, for a country like India it might not be the perfect solution. India needs a governance solution tailor made for it. This chapter tries to analyse this current system of e-governance and tries to come out with what ought and ought-not be done to improvise this mechanism of governance in India.

INTRODUCTION

The world today is changing at a grappling pace. The world climate is deteriorating while people all around the globe are becoming more and more interconnected. To keep the people connected, the governments have been harnessing the power of information and communications technology; the idea being to create sustainable models for social and economic development of the citizens. Governments have now come to the fact that in order to make this shift, they have to have a holistic approach towards governance which includes strategic planning, participation, responsiveness, efficiency and above all transparency. E-governance is an initiative towards this cause and also to ensure that it is sustainable in the long run.

The challenge that lies ahead of the governments is to develop sustainably, ensuring intergenerational and intragenerational justice. The definition of sustainable development has been very aptly defined in the Brundtland Report, 1987; it defines sustainable development as development that does not compromise the needs of the future generations. This inherently means that the national and sub-national government systems should become citizen-centric, socially inclusive, participatory and most importantly just. This brings us to that fact that while working for the citizens, the government needs to ensure what the citizens want. Their opinions should be voiced, not through any mediator but directly by themselves to the government. Only a direct interaction can ensure that the right perspective is considered and can be discussed upon.

This is where e-governance comes into picture. A governmental system is in itself very complex and appears more so to the common person who is not a part of it. It is high time every citizen feels itself to be a part of this system. The need to do so is more important for the particularly vulnerable groups, but the irony is that they are the ones who are most distant or unaware of such systems. It is applicable to the entire world but India is a classic example of this problem. It is very difficult to describe India to people who have never experienced it, but the following definition gets closest to it.

"It is impossible not to be astonished by India. Nowhere on Earth does humanity present itself in such a dizzying, creative burst of cultures and religions, races and tongues. Enriched by successive waves of migration and marauders from distant lands, every one of them left an indelible imprint which was absorbed into the Indian way of life. Every aspect of the country presents itself on a massive, exaggerated scale, worthy in comparison only to the superlative mountains that overshadow it. It is this variety which provides a breathtaking ensemble for experiences that is uniquely Indian. Perhaps the only thing more difficult than to be indifferent to India would be to describe or understand India completely. There are perhaps very few nations in the world with the enormous variety that India has to offer. Modern day India represents the largest democracy in the world with a seamless picture of unity in diversity unparalleled anywhere else." – *The Rough Guide to India*

The paragraph quoted above quite aptly brings out the essence of India. If one reads between the lines, one realises the problems that such a diverse land shall pose for policy makers of the country. Putting it in simple terms one can say that great diversity and the ever changing dynamics of the country mean that there cannot be one common solution for a common problem that might prevail in the country. There are umpteen examples that have proved that a policy successful in a country has not shown similar results in India. The visible difference in the country's dynamics is the answer to this dilemma. E-governance is no exception to this problem, but despite all its benefits is not doing very well in India. This chapter shall help us understand WHY is it so?

BACKGROUND

Before plunging into the problems of modern India, it is important to understand what e-governance is all about. In fact the very first problem that India faces is the fact that not many people out of the large population know what e-governance is all about. In today's world the domain of governance is changing very fast and e-governance is no exception to that. So here is a brief about the current version of e-governance.

Over the years, with increasing dependence on information technology, governments have also made a nodal shift from manual documentation towards electronic media in all spheres of government and governance. E-governance in general is a very broad term; it includes utilization of various information and communication technologies to facilitate the services delivery to the public sector. The idea is use large systems comprising of computers, fax machines and other sophisticated electronic equipment to collect, process and disseminate information on all levels of governance. These ideally start at a global level and go further up to the grass root level in each country. In this attempt, there are different types of interactions between the government and the public. These are:

1. G2C (government to citizens)

2. G2B (government to businesses)
3. G2E (government to employees)
4. G2G (government to governments)
5. C2G (citizens to governments)

Having mentioned this typology, it is very apparent that the most difficult of all is the very first category, i.e. G2C. This category poses a lot of challenges that range from citizen awareness, literacy to technological impediments. These shall later be discussed in detail in the following sections.

United Nations has played a pivotal role in this initiative and continues to foster the e-governance initiatives among its member states. So here is a brief on how it has been promoting e-governance. It is monitoring the approaches and progress via the "United Nations e-governance survey". The 2012 version shows the United Nations concerns over the unmet Millennium Development Goals 2015 and the role that e-governance plays in it.

As per this initiative, the UN believes that e-government can be the key to integrate the economic, social and environment goals for development planning. In this context it lays emphasis on recognizing the synergy among various departments of the governments, enable inter-institution linkages and foster connections between ecosystems and development outcomes. The emphasis also lies to introduce structural reforms that foster efficiency, better service delivery, participation of citizens and create a climate conducive for business. E-governance shall play a major role in creating such an environment.

This includes putting in place policies and laws for regulated ICT access and citizen participation. The intention is also to minimize on the digital divide also. It is interesting at this point to observe the role of supra bodies like ITU to understand their role as regulators of e-governance at a global level. This also implies the role of national governments concerning the national initiatives.

The entry point for economic sustainability is how e-government supports efficiency and effectiveness in government for greater growth and development by employing whole-of-government approaches. Hierarchical and bureaucratic structures need to be transformed into horizontal integrated systems, which facilitate customer orientation and increase levels of transparency and accountability in a move towards public service delivery solutions that are sustainable.

E-government can support environmental institutional integration by bringing environment agencies online and linking them with governance structures responsible for development planning so that coordinated solutions can be found that are efficient, effective and sustainable.

The Economist intelligence Unit has introduced a new index called the 'e-readiness index' to measure a country's readiness or willingness to benefit from Information and Communications Technology. It is also a measure of the e-business environment of a country and also its take on internet based opportunities. This index for India shows India's current status on ICT. The e-readiness index in India is 0.373 and it ranks 87 out of the 171 UN member states.

As mentioned earlier, this chapter is critical of e-governance in India. To support this argument, here are some statistics which raise a hoard of questions in one's mind.

Literacy Rate in India: 74%

Computer Literacy in India: 6.15%

Accessibility to internet and electronic media: 12.5%

Aren't these facts startling? And it is a country like this for which we are discussing e-governance. These figures hit the policy makers in the face in India. So how does one make progress in e-governance? Governance through the electronic media can be promoted and improved only when the entire nation or at least a substantial majority has access to electronic media.

MAIN FOCUS OF THE CHAPTER

Challenges towards the change

While making this conscious modal shift from manual operation towards electronic media or information technology, it is not the technology that poses the threat, but the organizational and social issues. It is likely that with the introduction of information technology, the role of the members shall change. This leads to a very crucial aspect of redefining the rules and procedures of working. The moment any 'change' is introduced, it is followed with a hoard of another issues. The reason behind which is the resistance towards any kind of change in the work culture. There is no way in which this resistance can be avoided, because it is human nature. However, making the people understand the reason for this change and their involvement is the real task.

Besides this resistance, it is utmost important to create adequate infrastructure for the mechanism; a major part of which is building skills and creating awareness. The new systems shall remain unused if the people are not involved and trained to use it. When the organizational structure undergoes a change, it must be ensured that there is interdepartmental collaboration among various departments and that their roles do not overlap.

The social issues associated with this include information transparency, right to information and most of all a legal framework to deal with any kind of breach. Over the years when IT has developed so much and the governments are also becoming more and more dependent on it, one cannot ignore the increasing rate of cyber crime simultaneously.

The Indian Dilemma

While the abovementioned problems have been dealt with various other countries and have developed certain solutions, India has its own additional set of problems. Some of these are related to the above points while the others are completely indigenous to India.

The foremost challenge that India faces is its large and rapidly increasing population. This problem is common throughout various issues that pose a threat to modern India. The population in this country is large, rapidly increasing and varied. The large heterogeneous population comes with a unique set of problems and has different needs. These needs vary geographically; depend on race and ethnicity, literacy level, etc. For a developing country like India which has limited amount of funds, the choice between the basic needs and technological advancements is very tough. Considering the countries budget, the policy makers are always in the dilemma whether to allocate maximum funds for feeding and providing the basic services to the poor; or to scoop out some amount and set it aside for capacity building for e-governance.

Language is another problem that comes with this multi-ethnic population. It is a well known fact that there are over 30 languages that are spoken in India. Hindi and English are the official languages, but not

everybody is conversant with them. The e-governance initiative has been majorly undertaken in English in India; the question arises that how speakers of the other 29 languages should be catered to? India is the second largest English speaking country in the world, but only 9% of its population is conversant with English.

English speaking also brings into focus two other problems; the percentage population which is computer literate and the population that is literate! The English speaking figures do give an idea, that this chunk of population shall not be very large. 74% of India's population is literate, which implies that the remaining 26% cannot be even considered to be a part of e-governance. Let alone participation, these people may not even be aware about a concept called e-governance. Doesn't the transition towards e-governance imply that the policy should address the issue of illiteracy?

Coming to the literate chunk of the population, only 6.15% of India's population is computer literate. This figure includes the people who are part of the governance systems and also the technical team responsible for the running of the entire system. It may not be out of place to mention that there are still some people in the government who are not very comfortable with the idea of using electronic media. Hence, it becomes difficult to interpret the statistics of computer literacy in this case; needless to say the decisiveness in framing a policy for e-governance.

For this computer literate population of India, accessibility to computers is another practical problem. 70% of India's population lives in rural areas. To bridge this gap between the vast rural urban divide is in itself a massive task for the government. People in these areas, already suffer from lack of availability of basic services like electricity and water. The situation varies from area to area, depending on the size of the village or the tribal areas. There are certain areas till date that do not have any access to electricity at all. There is an urgent need to create infrastructure here from scratch, which includes accessibility to computers as well.

These are the set of problems encountered when one talks about the G2C and the C2G interactions and revolve around the concept of citizen interaction and involvement in the process. The other kinds of interaction which involve the business, employees and the governments itself, the nature of problems may differ slightly. This is primarily where the organizational problems discussed in the previous section come into picture. Organizational and employee behaviour is a crucial aspect in this case. The resistance from the employees is quite strong and even after so many years; there still are a large number of people who are not well versed with electronic media. It is primarily the unwillingness to learn something new.

The businesses on the other hand are quite supportive of e-governance. They employ a large number of young professionals who are quite tech savvy. The older generation also has to keep pace with the technological advancements as the private sector in India is largely dependent on IT. The only resistance that comes through large businesses in India is when large conglomerates try to influence government decisions. It is then that transparency through e-governance affects them the most and hence, the resistance towards the change.

All the above mentioned points add to the inefficiency of e-governance in India. The current scenario is not very bright, but with a methodological approach India might help in public acceptance of e-governance in times to come.

Indian Experiences

It would be wrong to say that India has had only bad experiences with e-governance. To understand the situation and the exact nature of problem, the paper discusses two examples of e-governance initiatives in India. One is a good experience while the other a not so good. The two projects being discussed here are namely the 'e-Bharat' and the 'Lokvani' projects. Both the projects were set up to create transparency and accountability in the record systems. There are however two basic differences between the two; the former was set to cater to both the rural and the urban population with investments from the World Bank, while the later was an indigenous low cost initiative primarily for the rural population.

The e-Bharat scheme was initiated by the World Bank in India to promote e-governance and create transparency in the system. A huge amount of money was also designated for the project and the idea was to create an online platform to provide G2C and G2B services both at the central and at the state level. The g2c services included land records property registration, road transport, agriculture, municipalities, panchayats, police, employment exchange, education, health, food distribution & other welfare programs at the state levels. The central level plan included income tax, passport, visa and immigration and e-posts. The G2B state level services included commercial taxes and excise and company affairs at the central level. The project was conceptualised at a very large scale involving a huge investment and intensive planning at all levels. However, during the conceptualisation stage itself, there were tiffs between the Government of India and the World Bank on the project management style for the project. The world bank insisted on a hands on project management approach while the GOI wanted a programme mode. This tiff finally ended in World Bank withdrawing all its support from the project.

The Lokvani project as the name suggests was the people's voice. (*Lok* meaning *Public* and *vani* meaning *voice* in Hindi). The project was born in 2004 in the district of Sitapur in Uttar Pradesh, close to the state capital, Lucknow. It was initiated by the District magistrate to cater to the primarily rural population spread over 2300 odd villages in 2 parliamentary constituencies. The problem was realised when the DM was unable to address the problems of the people in the designated two hour time per day. These problems ranged from trying to access records to lodging complaints. It follows a PPP model, where the local municipal body has identified Lokvani kiosks in various districts. These kiosks run in the already existing privately run cyber cafes and similar outlets. These kiosks have people with basic literacy and computer knowledge who can very easily access the Lokvani portal for various issues. The people can come to these centres and get all the information they want or to lodge a grievance at a very nominal charge. The kiosks are recognised and licensed by the municipality and generates revenue from the collection. These kiosks again pay a very nominal yearly charge to the municipality. People can get any kind of information regarding land records, arms records, birth/death/ domicile/caste/income certificates, tenders, employment and other government schemes. The success of this model in the Sitapur district has led to the creation of Lokvani's in other parts of the country as well, all running successfully.

The primary reason for the success of Lokvani as against e-Bharat was addressing only the rural population and understanding their needs. A 'one size fits all' approach is not feasible in India. There is a start difference in the rural and urban population of India and both have to be addressed separately. The e-Bharat scheme did not do this and the huge World Bank investments drew the attention of the corrupt government officials, to avail it to their benefits. It really did not involve the people in it.

Solutions and Recommendations

Despite the various measures taken, the Indian population is still growing steadfast. It is expected to double by 2020 and hence the Indian government cannot ignore the fact. This also brings to light the fact that there shall be a steep rise in the urban population and by 2050 India shall have a 50:50 Urban-Rural divide. The situation today is however, very different. The policies shall have to cater to the increasing population also keeping in mind this shift in the population trends. The literacy levels shall also change accordingly and will again be dependent on the rural urban phenomenon. The question now arises how to cater to these populations; can it be done together or should a separate approach be tried? Maybe, the answer lies in the Lokvani example quoted above. Low cost local initiatives can be started at the very local level catering to the needs of the rural masses, while more formal institutionalization and nuanced practices be introduced in the urban areas. There still lies the grey area as to how does one address the needs of the urban poor. They are counted in the urban population but their needs are quite similar to the rural.

On the one hand, the prime focus has to be the people while on the other India cannot neglect the economics of it. It is necessary that the revenue generation is also increased in order to provide for the infrastructure expansion. Studies in the west have shown that e-governance is more effective in countries with higher revenue generation and advanced infrastructure. Putting it in India's context, one can say that cities generate higher revenues as compared to the rural areas and hence, should have better e-governance. This statement may be partly correct; the better IT infrastructure in cities does give better e-access to people but are the people really interested in adopting e-governance? There is still a major chunk of the population that indulges in unethical practices to get 'their work' done. This mostly happens when people want exponential monetary benefits. Such practices are however, not that prevalent in the rural areas. People are far more honest and resort to unethical practices only when left with no choice. But nonetheless, revenue generation from the cities can be partly deployed for improving the infrastructure in the adjoining rural areas.

E-governance has a crucial role to play in this transition i.e. to keep the people engaged and informed in this process. The challenge as discussed before also lies in accessibility to technology, but emphasis should be laid on how to represent the vulnerable groups in this process. The idea should be to initially create a chain of organizations and institutions that voice everybody's opinion.

A major initiative to support the e-governance drive should be on increasing the education levels and standards in the country. The key problem lies in the fact that a majority of people are not access and some do not even have the access to education. It is not until the literacy rates are increased that problems like these shall be solved. India has a large youth population and the nation shall prosper only if this youth is educated and made conscious of their responsibilities. The urban Indian youth is gradually becoming aware and the policies should further emphasise it. In fact the urban youth can play a major role in bridging the Urban-Rural gap. Various youth organizations can take initiatives to promote e-governance in rural areas. Training sessions for the rural youth and even the adult population can be very successfully held with support from the large urban youth.

Education can also solve the language problem to a certain extent. It does not mean that a person who does not know Hindi or English (India's official languages) is not educated; a lot of people are educated in their native languages. Information technology has made a significant progress in this area but the problem is that not many Indian languages have been considered. An ideal situation would be to have all

information primarily in Hindi and English with selection of some regional languages. This selection can be done on the basis of the percentage population speaking it. At least one major language of the region should be identified and incorporated in the web portals. Numerous international websites have several language options, then why is it so difficult to have a website with various Indian languages? The IT advancement within the country may then be the solution.

The infrastructure bit of the problem is governed by the money the country has. Sadly, the state of affairs in that department is not very promising. India at the moment is struggling with huge international debts on one hand and the problem of providing basic services to the poor on the other. It will take some time to get over this issue. However, India still lacks the shear will and determination to get over these hurdles. There are policies and initiatives to deal with these issues, but what lacks is the whole hearted will to do it. A drastic turnaround in the policymakers and implementers attitude is a must at this point in time. There need to be extensive awareness programs even within the government to bring about this change.

The business in the country can be a significant contributor in this change, but all they lookout for are monetary benefits from any new policy. The industry and the conglomerates in the country do have a lot of initiatives under 'corporate social responsibility' to do their bit, but the problem there also lies in the fact that the drive is lacking there also. Company policies may be there on paper but the implementation and execution is not talked about. Moreover, any new policy by the government is largely influenced by the company's interest. In certain cases where it is not, the extensive lobbying finds a way to make it conducive to their needs. It is high time that the industry realises its 'corporate social responsibility' and treat it like a responsibility and not just a mundane task.

Besides all the technological and infrastructure advancement that India needs, it is primarily awareness that it lacks. A great effort needs to be put in to make the public aware, and this is not just the government's responsibility! The government, industry, NGO sector, educational institutions and the citizens should be partners to bring about this change.

Future research or operational directions

A common question that is now surfacing extensively is that how India does takes care of its tribal population and its needs. India also has a significant tribal population, a few of which are physically isolated from the common public. In a certain sense it is good if it is kept that way because of health issues. These tribes have never come in close contact with the common public and a sudden association may lead to unexpected health hazards to these tribes. They may not conform to the 'general' norms of education but it may be interesting to note that they have their own knowledge and dissemination systems among them. It is necessary to understand how such communities can be integrated in the decision making process of our country. If we are able to progress in this direction then a great deal of the public participation problems will be resolved.

CONCLUSION

Mr. Ravi Kant (Special Secretary, IT, Govt. of West Bengal) has very rightly explained that, governments need to realise is the fact that "e-governance, however, is not really the use of IT in governance but as a tool to ensure good governance. E-governance does not mean proliferation of computers and accessories;

it is basically a political decision which calls for discipline, attitudinal change in officers and employees, and massive government process re-engineering".

All implementers and drivers of e-governance initiatives agree that the biggest challenge of deploying e-governance is not technology but change in management. Change in management is important not only in terms of cultural change but also in terms of changing operations and processes workflow that the automated environment will introduce. This shall vary for the urban and rural areas. Attention must be paid to the different needs of the people in these areas.

"It's important to educate people at all levels about the benefits of technology. The various benefits and advantages of e-enabling the system should be communicated clearly right at the beginning to ensure popular support which will lead to greater chances of success," - Dr G D Gautama, Secretary, IT, Government of West Bengal.

It is important to explain to people that the introduction of IT will not take away existing jobs but will make their work easier. In case there is less demand for manpower in certain areas, it does not mean that the jobs will be slashed down. The Government of India is very well aware of the fact that it needs to generate jobs to give a livelihood to its citizens. And in this endeavour to digitalize everything, it has not lost sight of that impending need of the country. Once this mindset of people is changed, there shall be a wider acceptance of the use of electronic media.

REFERENCES

Instance of publication in press:

Marc Holzer, Seang-Tae Kim. (Digital Governance in Municipalities Worldwide (2007), United Nations & The American Society for Public Administration) A Longitudinal Assessment of Municipal Websites throughout the World

E-Government Survey 2012 (Department of Economic and Social Affairs, United nations)

Ernst & Young (e-governance 2020) FICCI-Ernst & Young report on emerging themes for e-governance in India

Journal article:

Vandana Gupta & Ajay Sharma (2012). E-Governance in India: Problems, Challenges and Prospects. *The International Journal's: Research Journal of Economics & Business Studies, Vol 1, No. 9*

Sanjay.K.Dwivedi & Ajay.K.Bharti (2005-10). E-Governance in India – Problems and Acceptability. *Journal of Theoretical and Applied Information Technology, Vol 17, No.1*

A.P. Singh (2005). Lokvani: An e-Effort to Empower Citizens. *Information technology in Developing Countries, Volume 15, No. 2*.

Paper presented at Pacific Asia Conference on Information Systems:

Das, A., Singh, H. & Joseph D, (2011). A *Longitudinal Study of E-Government Maturity*. Paper presented at the Pacific Asia Conference on Information Systems, Brisbane, Australia.

Published proceedings:

Chandra & Borah Malaya (2011). Problems & prospects of e-Governance in India. *World Congress on Information and Communication Technologies (WICT), 2011*

Web site:

www.it.iitb.ac.in/~prathabk/egovernance/challenges.html. Retrieved June 25, 2014

www.worldbank.com

Praveen Dalal (2009). E-Governance Projects have failed in India. *Human Rights Protection in Cyberspace*. Retrieved August 13, 2014, from http://hrpic.blogspot.in/2009/12/e-governance-projects-in-india-have.html

Lokvani. *Governance Knowledge Centre*. Retrieved August 15, 2014, from http://indiagovernance.gov.in/bestpractices.php?id=3

E-Governance and Rural – Urban Continuum: Study in Indian Context

Harekrishna Misra

Professor, Institute of Rural Management Anand, India

Sanjay Kumar Panigrahi

Chief Executive Officer, Sahaj e-Village Limited, Kolkata, India

Abstract

Globally e-governance services are aimed at enhancing engagements among all stakeholders including citizen, government, business and civil society etc. Contemporary e-governance with focus on e-participation, e-collaboration and e-citizens deals with policies for citizen centric services and fostering demand driven citizen engagements. With web 2.0 and service oriented architecture enabled technologies, tools and services e-governance policies are well supported in many countries with focus on citizen centeredness. Despite these advancements in technologies and enabling policies, all developing countries still grapple with rural urban digital divides. However, e-governance policies to address these divides in many developing countries have provided evidences supporting rural urban continuum. However, such interventions are not free from challenges related to innovations and managing transitions in e-governance system. In Indian context, the situation is quite complex because of its geographic spread, diversity in socio-economic disparities and federal structure of governance. This situation has overarching effects on digital divide and also provided rich insights to support rural urban continuum. National e-Governance Plan (NeGP) introduced in 2006 has now embarked on NeGP v.2.0. This chapter discusses the genesis of NeGP in India, and its contributions to rural urban continuum, opportunities and challenges it faces today. The chapter includes case of Sahaj e-Village Ltd (SeVL) which is a constituent of NeGP and discusses its role in fostering rural urban continuum..

Keyword: E-Governance, Digital Divide, Digital Inclusion, Web 2.0, Service oriented Architecture, E-Participation, e-Collaboration, Citizen Engagements.

INTRODUCTION

Globally e-governance efforts are concentrated on citizen centred services. Advent of web 2.0 technologies has paved the way for enhancing citizen engagements and fostering innovations in information and communication technology (ICT) enabled services. E-governance efforts today are focussed on convergence among entities including business, civil society, government and citizens.

Evidently, contributions of web 2.0 and service oriented architectures (SoA) have shown effective methods to bind people, process and technology for better participation, interaction and user orientation. With its main focus on citizen centric services and providing backbones for demand driven citizen engagements with the government, e-governance has the potential to embrace web 2.0 enabled technologies, tools and services and SoA. Millennium Development Goals (MDGs) argue that e-governance through its efforts to foster e-collaboration and e-participation has the potential to engage citizens in managing their own development and the society at large (Misra, 2103). In Indian context, this approach is essential though the situation is quite complex because of overarching effects of digital divide. Despite continued efforts of the national and state governments under NeGP and citizen centric information technology policies (NTP), there are various challenges in implementing them (DIT,2011). Like any other developing country with emerging economy, India faces the challenge of rural urban continuum. This challenge creates more scope for the NeGP to innovate and render seamless services for the citizens while embracing best practices in governance. Effort of SeVL, one of the state level agencies under NeGP is noteworthy. SeVL has innovated services in an attempt to engage citizens in acquiring e-skills, orchestrates e-government services and meet the demand of citizens.

Organization of this chapter is as follows. In the following section various frameworks are discussed on architectural description, transformation and evolution of e-governance. This section also discusses rural urban continuum with reference to e-governance. Based on these frameworks, the next section includes discussions on NeGP and its deliveries. In the next section opportunities and challenges faced by NeGP are discussed. The following section focuses discussions on NeGP and its contributions to rural urban continuum. In the next section case of SeVL is discussed. This case refers to NeGP mandates and the process SeVL has adopted in implementing those mandates. This case based discussion aims to assess the way NeGP services are oriented and the scope for their support to promote web 2.0 and SoA based services. This discussion is expected to explain the citizen orientation and their engagements with NeGP through web 2.0 and SoA services. Following section includes discussions on recommendations and future research direction.

FRAMEWORKS FOR THE STUDY

This section includes discussions on topic based on three frameworks i.e., 1) architectural description of e-governance to deal with citizen centred services, 2) transformation of services through e-governance and 3) evolution of e-governance in a national context. Besides, this section includes discussions on rural urban continuum and role of e-governance in managing this transformation.

Framework for Architectural Description of e-Governance

Global efforts in e-governance have delivered mixed results. Some countries (depending on size, socio-political complexity, and government) have been able to derive appreciable results out of this exercise. The United Nations (UN), The European Union (EU), and other global entities have embraced e-governance practices and have given importance to citizen-centred services (EU, 2007; UN, 2010; UN,2011). It has been recognized that e-governance efforts need to have road map with long term strategies to bridge the digital divide, create digital inclusion opportunities and should be technology oriented. Architectural perspectives, especially in systems, provide insights to building strategic roadmaps (Garlan and Shaw, 1994) with these principles. E-governance being strategic in nature

involving complex relationships among stakeholders needs architectural treatment. Close look at e-governance architecture suggests that SoA, web 2.0 and e-governance have similarity in addressing user service orientations. E-Governance is understood to be effective through e-participation and e-collaborations and these attributes are part of the web 2.0 architecture (West, 2008; OECD, 2003). User centred designs (UCD) in software engineering advocates in this direction for better and effective use of software. In the context of SoA, participation and collaboration among stakeholders (i.e. service user, service broker and service provider) are essential (Governor et al, 2009; Chang and Kannan, 2008, West2008). SoA is expected to provide 'universal service identifier' in the system so that desired service can be identified 'on demand' raised by service user with least transaction cost and time, and independent of spatial constraints. Service provider needs to design services and coordinate with service broker with service descriptions so that desired service is mined from the warehouse (Heeks and Molla, 2009; Mehdi, 2005) and served to the user. Due to the benefits of SoA and web 2.0 architectures, there is scope to combine their strengths in taking e-governance architecture forward at the enterprise level as presented in Figure 1.

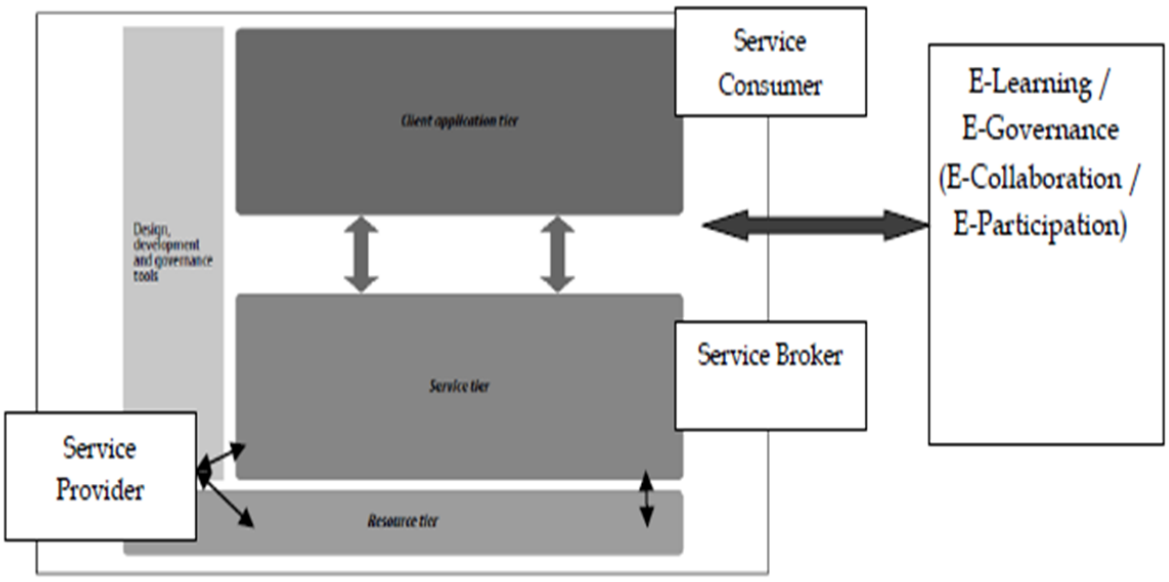


Figure 1: **Architectural Description Framework of Web 2.0, SoA, E-Governance** (Adopted from Governor et al., 2009)

Millennium Development Goals (MDGs) recognize uses of information technology enabled services (ITeS) including e-participation, e-collaboration which are major attributes of e-governance (UN,2011, EU, 2007; SESRIC, 2010). SoA and Web 2.0 attributes are closely related to e-collaboration, e-participation and social neworks. In e-governance paradigm orchestration is absolutely essential. Orchestration needs to happen through the service broker as presented in Figure 1. In this framework e-learning is seen as an intervening process that aims at enabling citizens to not only equip them in augmenting livelihood opportunities, but to enhance their capabilities to effectively collaborate and participate. This environment is expected to improve upon the e-readiness leading to better e-engagements of citizens. The framework suggests that parameters like e-readiness, availability of content, connectivity and capital would critically influence the uptakes and impact of e-governance services. However, the framework also considers the citizens' demand to be local and household specific.

Framework for Transformation of e-Governance Services

This suggested framework argues that E-government is expected to pursue the best practices and engage with the constituents of e-governance stakeholders as a support structure. E-governance on the other hand, is expected to formulate policies and enact the engagements so that governments are transformed to e-governments. However, basic tenets of governance need to be the prime influencers for such transformation (Mehdi,2005). As mentioned earlier, digital divides do reflect on the distinguishing behavior of e-governance in different economies in the world. In Figure 2, a generic e-governance framework is presented for the purpose. In the framework it is argued that citizens are the prime movers of e-governance and thus all the services should be citizen centric. The framework identifies three layers for rendering citizen centred services: 1) Network, 2) Distribution, and 3) Access (Garlan and Shaw,1994, MIsra,2010b). It is important to note that any service that e-governance plans to deliver should take note of the service layers and ensure that the access layer gets the top priority whereas network and distribution layers support this process.

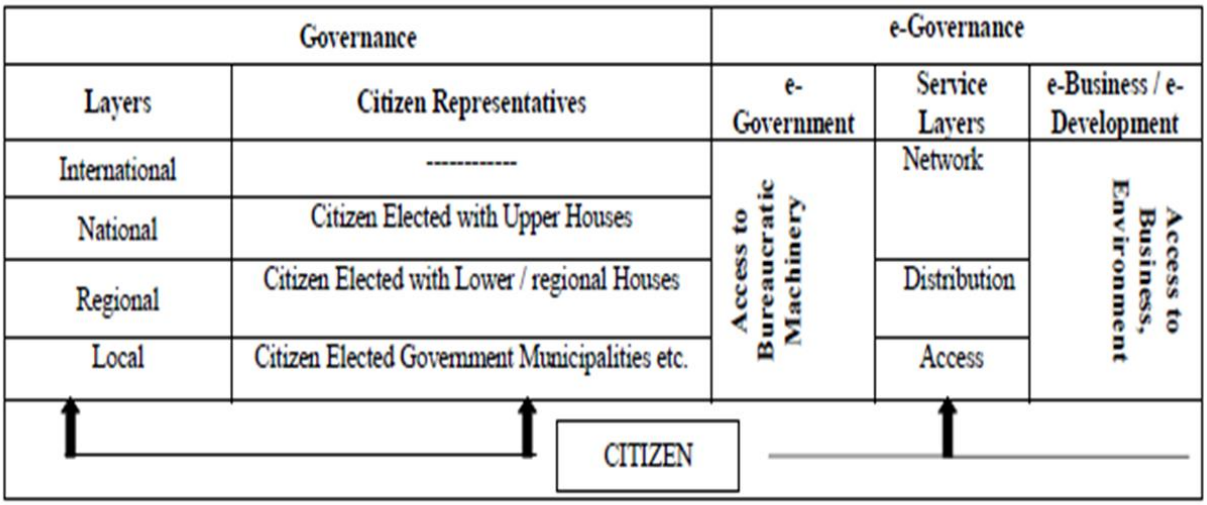


Figure 2: Framework for Service Transformation in e-Governance

Study indicates that e-governance has emerged as a national agenda for rendering citizen centered service. E-Governance is fast transforming itself from well networked e-government portals with passive information to agile information driven service delivery systems on demand (West, 2008, Misra and Panigrahi,2014). Many also argue that e-governance not only looks for establishing processes for SMART (Simple, Morale, Accountable, Responsive and Transparent) governments but also strives for addressing the challenging dimensions of digital divide (EU,2007, Misra, 2013). Fundamentally E-governance being ICT driven, most of the approaches are influenced by software engineering process models. E-governance plans cover issues related to local, regional, national and international levels and therefore, has the potential to be strategic information systems oriented (SSRIC,2010,OECD,2003, Misra,2013).

Framework for Understanding Evolution of e-Governance

In Figure 3, framework for evolution of e-governance is presented. It argues in favour of a staged model in which activities are sequenced. It suggests that connectivity is a mandatory requirement for fostering e-

governance in a national level. This stage is "readiness" and therefore, UN and ITU are focusing on this issue rigorously. The subsequent stage is for deployment of e-governance services and is related to SISP. Development informatics is the area that deals with such issues by learning from computing best practices available elsewhere to replicate in e-governance areas and provide ambience for rendering services and facilitating uptakes. The third stage includes assessment of impact of e-governance services in the context of its stakeholders. This stage is largely dealt with agencies involved in impact assessment and view e-governance as projects.

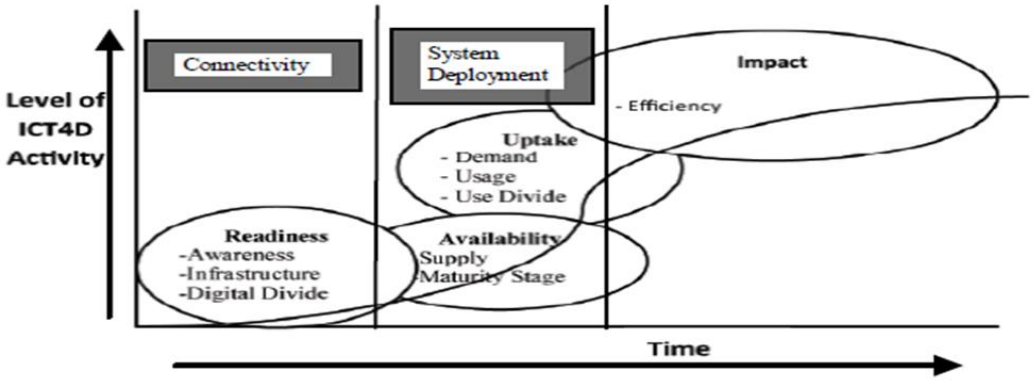


Figure 3: Framework for e-Governance Evolution (Heeks and Molla, 2009)

Rural Urban e-Governance Continuum

Rural urban continuum is a global phenomenon and argues against rural urban divides. This paradigm postulates that rural and urban sectors complement each other and they need to coexist in terms of factors of production, trade, information flow, governance and even managing institutions (Dewey, 1960; Pahl, R. E., 1966). Rural urban continuum therefore, argues in favour of formulating enabling policies, integrated infrastructure and creation of platforms for convergence of services. This ambience is likely to forge dynamic links between business, sectors and geographical areas.

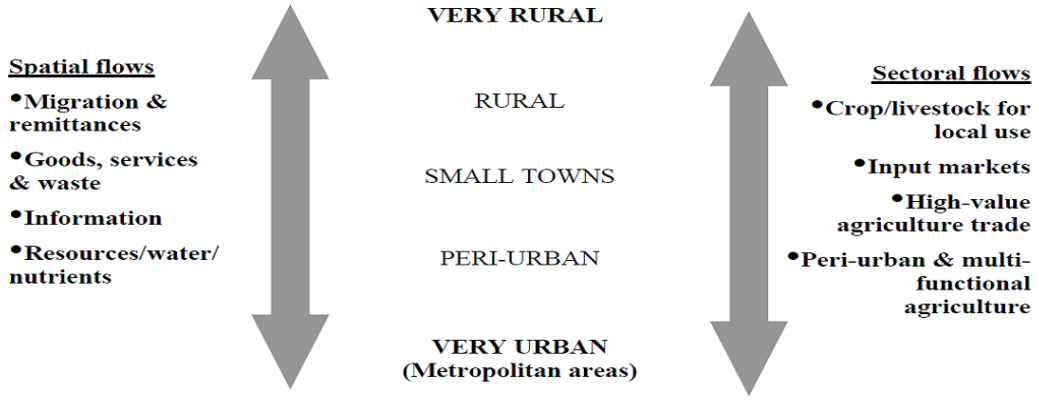


Figure 4. Rural Urban Continuum Elements (Braun, 2007)

In Figure 4 a framework is presented to appreciate the complexities that rural urban continuum offers. It also presents opportunities that e-governance policies can offer to mitigate challenges and promote coexistence. The framework suggests that spatial flows need to be supported by information symmetry for effective utilization of resources and sectoral flows need adequate seamless integration of market (input and output), expert – citizen interactions for value added services on demand (Dewey,1960; Pahl,1966). All these issues are multi-dimensional and role of e-governance is well articulated in supporting this continuum.

INDIAN E-GOVERNANCE - NEGP

Government of India (GoI) embarked on implementing NeGP in 2006. GoI recognized that ICT can be prime mover for overall development of the nation and society through SMART government. GoI also recognized that, given the diversity in social, economic, cultural and demographic diversity in the nation, ICT can play a supporting role in networking among agencies involved in development, rendering transparent services, and reducing the need for intermediaries. NeGP in its mandate focussed on rural services with the aim to reduce information asymmetry, provide the citizens the access to government services by reducing bureaucratic overheads, the access to micro-credit and financial inclusion services, and the platform to conduct business on line. NeGP included 27 central, state and integrated mission mode projects (MMPs). The main aim of NeGP was to establish infrastructure that can support delivery of "web-enabled anytime, anywhere access" to information and services in rural India.

Architectural Description of NeGP

Application of architectural description framework as presented in Figure 1 suggests that, NeGP architecture strategically included all components for implementation of the plan. NeGP architecture is presented in Figure 5. The constituents of NeGP architecture are i) The Department of Electronics and Information Technology and DeITY (erstwhile DIT), National Level Service Agency (NLSA), Special Purpose Vehicle (SPV), State Government, State Designated Agency (SDA), Service Centre Agency (SCA), Village Level Entrepreneurs (VLEs). The DeITY is functional representative of GoI spearheading the agenda. It guides, formulates strategies and monitors NeGP for its overall success.

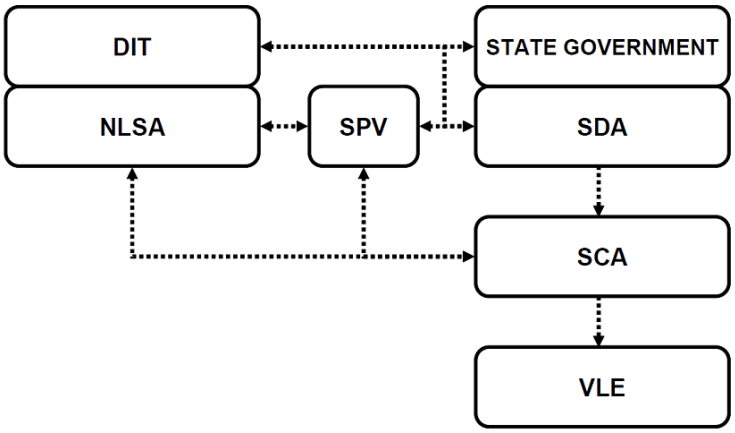


Figure 5. NeGP Architecture, DIT, (2011)

NLSA works an intermediating agency to implement the project on Public Private Partnership (PPP) mode. It manages the project in terms of identification, customization and implementation of the physical and digital infrastructure required for the project. It also has the responsibility of aggregating best practices, networking content providers, etc. and roll out the plan across all states. The SPV has equity partners who would invest in the SPV, like DIT, NLSA, and Strategic Investors. The Equity Capital of the SPV, in part, is also subscribed to by the SCAs. The SPV is responsible for channelizing the Government support to the SCAs and liaises with SDA. SPV undertakes roles and responsibilities like i) laying down operating and financial guidelines within the CSC system, ii) providing a framework for collaborative decision making process, iii) catalyzing and maintaining content aggregation on an on-going basis and iv) build a common "identity". The SCAs are expected to pay a fee to the SPV for all the above assistance / services. The SDA is partner in the roll-out process under PPP scheme and invests resources. It has three functions i.e., i) facilitator for policy, regulatory and other relevant changes with the State Government; ii) facilitator for enabling e-Government services and iii) enabler for infrastructure and other support to the SCA. The SCA is prime driver of the CSC eco-system. The SCA is the owner of the CSC network in pre-defined areas of operations in the State. The SCA undertakes activities including i) identification of required applications and services, ii) harnessing the State network, iii) identifying and training the VLE, iv) establishing the CSC (either directly or through the VLE), v) supplying, aggregating and updating content and services. The SCA is supported by the NLSA and the respective State Designated Agency (SDA) to implement the CSC Scheme. The SCA is responsible for the overall profitability and sustainability of the CSC business. It also facilitates implementation and provides policy guidelines from time-to-time, Government to citizen (G2C) services, and disbursement of revenue support to the SCAs. The VLE is the key to the success of the CSC operations and is the last layer in the architecture. A good VLE is considered to be the one who has good entrepreneurial skills, strong social commitment as well as respect within the community. The VLE is expected to manage the CSC business at the ground level. Therefore, all the constituents in the NeGP architecture, are responsible for selecting of the VLE and providing it proper training for effective implementation of the CSCs.

Table 1: NeGP Architecture

SOA Attributes	Web 2.0 Attributes	Constitutes of NeGP
Service Demand	Participation-Collaboration	VLE/SCA
Service Aggregation, Orientation	Asynchronous Particle Update (the pattern behind AJAX etc.); Collaborative Tagging	SCA/SDA/SPV/NLSA
Service Orchestration	Structured Information (Micro formats); Declarative Living and Tag Gardening	VLE/SCA/SDA
Service Agency Collaboration	The Synchronized Web; Software as a Service	SDA/SPV/NLSA, DeITY

In Table 1, relationship among NeGP architecture constituents with SoA and Web 2.0 architectures are presented. It may be seen that NeGP architecture is in compliance with SOA whereas Web 2.0 compliance needs further deliberation. Current status of NeGP indicates that every SDA has website/ web portals to monitor their VLEs, and each SDA is part of the SPV portal. Each VLE uptime is monitored for their performance through client software under client-server architecture and DeITY and each state government compiles this information to compensate SDAs for the services. While service agency collaboration through web portals AND synchronization of databases are available, Software as a Service (Saas) is yet to come up for NeGP. As regards service orchestration, on-line features are yet to be

implemented in teh system and SPV, DiETY and other agencies at state level are still struggling to acquire resources for implementing this service. Similar situation prevails in the areas of service aggregation, service orientation and service demand generation as SOA principle and thus implementation of Web 2.0 architecture principles is a distant dream.

Transformation of e-Governance Services through NeGP

In Table 2 various services under NeGP panned are presented.

Table 2: NeGP Services

Service Layer	Constituents of NeGP	Services Rendered / Planned
Network	DeITY / NLSA / SPV/	MMPs (Central /Integrated); Creating networks for G2G, G2C, G2B, B2B and B2C environment
	State Government	MMPs (State / Integrated); Creating networks for G2G, G2C, G2B, B2B and B2C environment
Distribution	SPV	VLE Capacity building, managing web portal for orchestration of SDAs, VLEs; Liaison with NeGP stakeholders
	SDA	VLE development, Recruitment, B2C, G2C, B2B
Access	SCA	VLE networking, service demand aggregation, Service channelization
	VLE	Service identification, Service provisioning

As regards services, NeGP in India has identified Mission Mode Projects (MMPs). Table 3 presents them as follows:

Table 3. MMPs in India

MMP Level	Description of the Service
Central Government	Income Tax, Central Excise, Passports/Visa & Immigration, MCA 21, National ID, Pensions, Banking, Insurance
State Governments	Agriculture, Land Records, Transport, Treasuries, Commercial Taxes, Gram Panchayats, Registration, Police, Employment Exchange, e-Districts (State can add 5 MMPs as per their choice), e-Municipalities
Integrated	e-Business, Electronic Data Interchange, India Portal, Electronic Government Gateway, E-Courts, E-Office, E Procurement, Stock Exchanges

Services listed in Table 3 are specific to the central government and the state governments while some are integrated across state governments and central government. These integrated services, which are independent of states and the centre, will be available seamlessly to the citizens of India. In addition to these services, efforts are being made by the civil society, business organizations, and funding agencies to provide ICT enabled services. However, these services may be deployed and used with the availability of desired infrastructure. The success of these services would also depend upon adequate support on the part of the citizens who are otherwise challenged by many issues vis-à-vis MDGs.

Evolution of NeGP

Study on evolution of NeGP is based on the framework presented in figure 3. NeGP traversed the desired path as per the framework though its effectiveness is varied in nature. They are discussed hereunder.

Connectivity Readiness

As presented in Figure 3, readiness exercise involves three issue i.e. awareness, infrastructure and digital divide. Awareness on NeGP is quite high because of its spread across all the states covering cluster of villages with CSCs. These CSCs are owned and operated in the village and each VLE is a villager. As regards infrastructure, NeGP has involved all the state governments to set up their State Wide Area Networks (SWANs), all the central ministries and state governments have operated their websites, SDAs have also provided on-line web services to VLEs and SPV; and SPV has made its portal operational to engage with SDA and VLEs for channelizing the services. All the CSCs are equipped with internet connectivity, ICT infrastructure and applications as required to make a CSC selh reliant in providing service to citizens.

Notwithstanding its progress in the area related to readiness, progress of NeGP has been critically influenced by the Indian policy. Indian scenario in readiness exercise as per global standards has been dismal leaving much scope for improvement. They are discussed in terms of e-readiness (ICT indices), and tele-density, digital infrastructure and network readiness index .

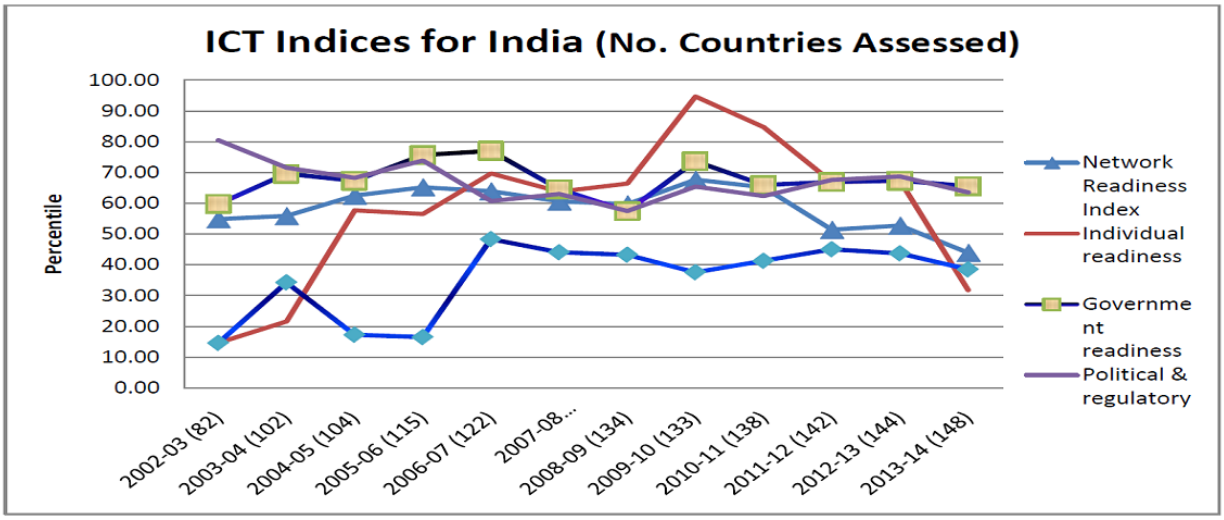
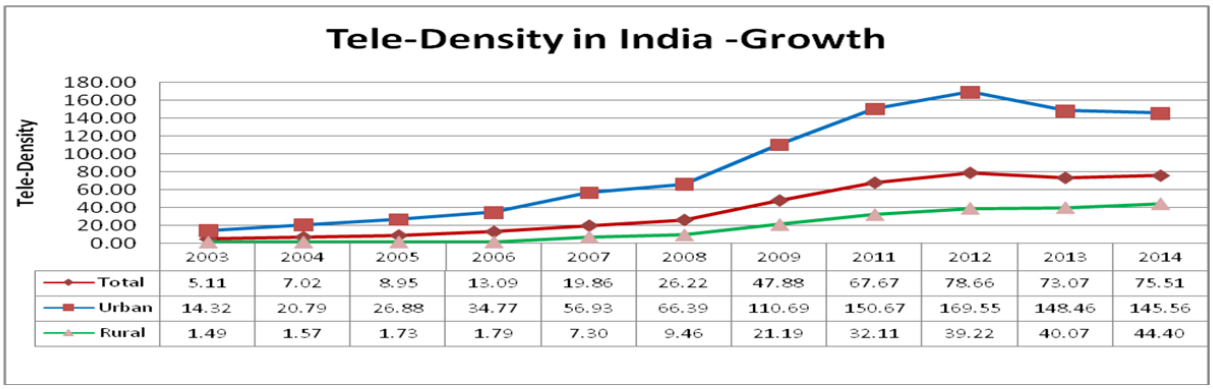


Figure 6. Readiness Measurement (Benat et al., 2014)

In Figure 6 INSEAD assessment of ICT with various indices is presented. It may be noted that prominent among the indices are individual readiness which is not performing well in Indian context. All other indices i.e. network readiness; government readiness and political and regulatory readiness are also displaying decrease in their performance. In Figure 4 INSEAD has presented Indian scenario with emphasis on network readiness index that covers business, government, individuals, affordability, impacts (social and economic), and usage. Figure 7 provides an overview of tele-density in India. It indicates that Indian scenario is still challenged by the rural-urban divide in the context of telecommunication infrastructure.



	2003	2004	2005	2006	2007	2008	2009	2011	2012	2013	2014
Total	5.11	7.02	8.95	13.09	19.86	26.22	47.88	67.67	78.66	73.07	75.51
Urban	14.32	20.79	26.88	34.77	56.93	66.39	110.69	150.67	169.55	148.46	145.56
Rural	1.49	1.57	1.73	1.79	7.30	9.46	21.19	32.11	39.22	40.07	44.40

Figure 7. Tele-density in India

This challenge provides a lead for analyzing the future of ICT adoption since the internet is predicted to largely influence the ICT enabled services in future irrespective of its medium (i.e., wire, wireless, kiosk, mobile, personal digital assistant etc.). All the indices assessed in Figure 8 i.e. phone lines, mobile network coverage, mobile phone ownership, PC ownership, broadband use, and internet bandwidth availability for India are ranked very low (the higher the number, the lower the rank) in all the 138 countries assessed by INSEAD. All the assessed indices point to a phenomenon called design-reality gap. It is, thus, easy to deduce that India needs to be proactive with regard to setting up right policies and their implementation.

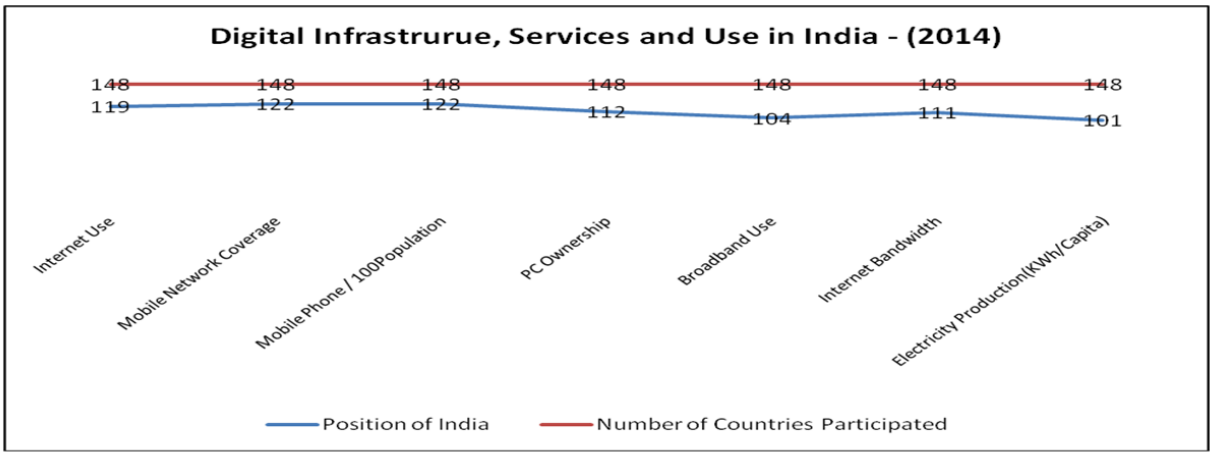


Figure 8. ICT Indices for India (Bennat et al., 2014)

In Figure 9, status of network readiness in India is presented. It is important to note that affordability in accessing ICT enabled services has been very encouraging. However, the most challenging issues that hinder the readiness in India include poor political and regulatory environment, individual usage, infrastructure and digital content, and social impacts.

India

	Rank (out of 148)	Value (1–7)
Networked Readiness Index 2014	**83**	**3.8**
Networked Readiness Index 2013 (out of 144)	68	3.9
A. Environment subindex	**91**	**3.8**
1st pillar: Political and regulatory environment	73	3.6
2nd pillar: Business and innovation environment	103	3.9
B. Readiness subindex	**85**	**4.6**
3rd pillar: Infrastructure and digital content	119	2.7
4th pillar: Affordability	1	7.0
5th pillar: Skills	101	4.0
C. Usage subindex	**91**	**3.4**
6th pillar: Individual usage	121	2.1
7th pillar: Business usage	51	3.8
8th pillar: Government usage	41	4.5
D. Impact subindex	**60**	**3.6**
9th pillar: Economic impacts	50	3.5
10th pillar: Social impacts	73	3.7

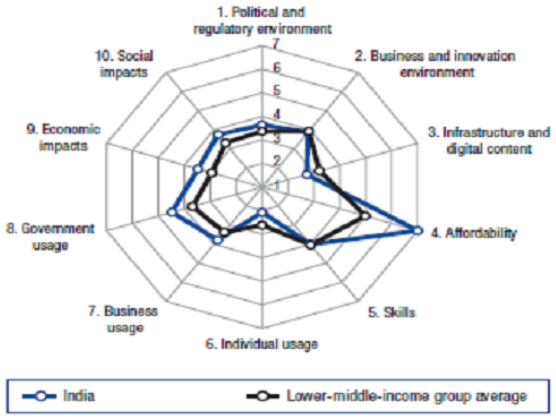


Figure 9. Network Readiness Index- India (Bennat et al., 2014)

Despite all these challenges India has shown encouraging impacts on government usage, skills, and business usage of ICT. Therefore, India needs to nurture enabling political and regulatory environment to foster e-readiness in India.

Systems Deployment – Uptake and Availability

As presented in Table 3, NeGP identified various MMPs for implementation. Today, almost all state governments have progressed in deploying websites for citizen centric services, created state data centres (SDC), automated various processes of governments including document management systems through SWANs. As regards national MMPs, GoI has also deployed web-enabled services for all ministries and also implemented strategies for setting up of infrastructure for internet, communication systems and networks (wire and wireless), application and services. While policy level interventions like national telecommunication policy (NTP) -1994, 1999 and 2012 and broadband policy 2000 are in force, various applications for G2C, G2B, and B2C categories are deployed.

Impacts

Impacts of NeGP are multi-dimensional and have been mostly rural centric. The first dimension relates to establishment of ICT infrastructure under PPP model. A VLE in a group of villages is seen as a service provider of GoI. This infrastructure is supported by GoI and state governments in terms of extending internet services, providing on-line web based services. The second dimension is the motive behind rendering e-services in a village on demand. This has led to infusion of trustworthiness of government systems among the locals who need not go far off places to meet government officials for availing G2C services. Besides, many other services including B2C are being availed through this centre. The third most important dimension of this NeGP is the awareness among citizens on this transformation i.e., acceptance of digital interfaces, e-collaboration and e-participation. However, outreach of this plan has been sporadic due to strategic disconnect among ministries, state governments and channelizing agencies.

OPPERTUNITIES AND CHALLENGES FACING NEGP

As discussed earlier, NeGP planned in 2006 was scaled up across India to provide all e-services to citizens in rural or urban areas. It aimed to transform all services including G2C, G2B, B2B and B2C etc. with convergence to spur growth and development and by bringing in SMART e-governance systems. Various MMPs were planned for this purpose. The priority of NeGP was to channelize G2C services through CSCs operated by VLEs in order to establish trust of citizens in government and thus VLE will piggyback on this trust to operate the CSC as a strategic business unit (SBU) and make the business viable. Similarly, SCAs who invested in the plan were expected to make their investment viable through transaction fee for revenue streams earned by VLEs. The most important premise for this viable plan was that all the citizens would transact with VLEs and receive G2C, B2C services at a fee determined by the GoI. It meant that responsibility of channelizing all the services through VLEs would be with the GoI and state governments.

Opportunities

By the year 2014, eight years after commencement of NeGP implementation, it has delivered mixed results. While many SCAs withdrew from the plan citing unviable business for them, there are some like SeVL who still struggle to manage their business by making relentless efforts to network with government agencies, deal with public and private sector channel services through VLEs. VLE in many cases have earned respect and trust among citizens. Many urban centres have shown good and viable business senses. Many state governments have channelized services and have been champions. Many MMPs at the central and state level are being implemented with less attention to their integration though schemes like India portal, National e-Governance Services Delivery Gateway (NSDG), electronic data interchange (EDI), and e-procurement are operational. In Figure 10, status of MMPs are presented. All these MMPs however, have created opportunities for all agencies in e-governance supply chain to make use of this infrastructure. The scenario may drastically change in favour of NeGP for effective citizen engagements if all the MMPs are implemented as per the timelines and with quality.

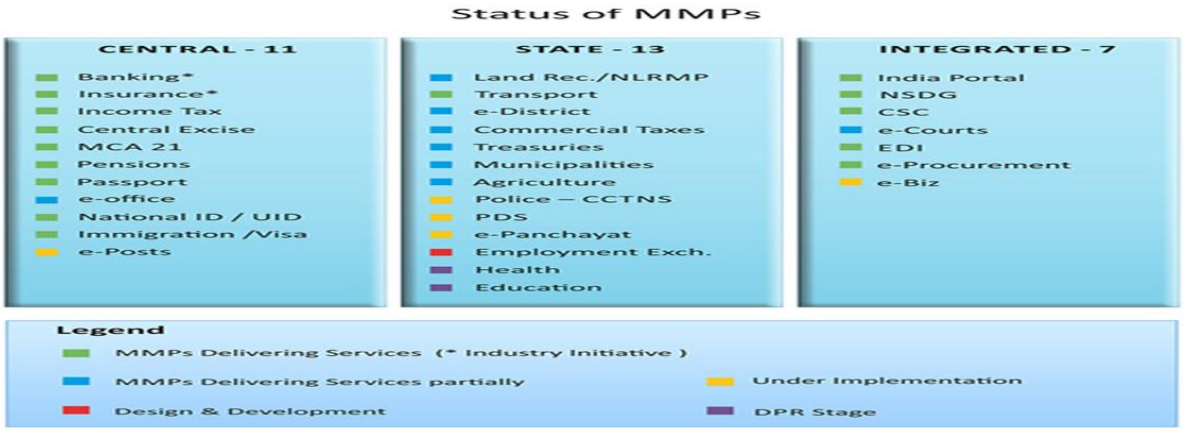


Figure 10. Implementation of MMPs in India, (INDG, 2014)

It is also pertinent to observe that while central MMPs are being implemented with due attention states are yet to imbibe this strategy for extending services to the citizens. In Indian democracy having federal structure of governance, role of state governments is important since these entities are close to the access

layer of e-governance and near to the citizens. As regards municipalities, districts and other urban centric e-governance services, NeGP has been lagging behind schedule. Roll out of services at the central level has provided the desired learning for the state governments to carry on with the mandates and implement them in rural and urban areas for effective e-governance. In Figure 11, status of state level plan is presented. It may be seen that all services except road transport are in different states of implementation.

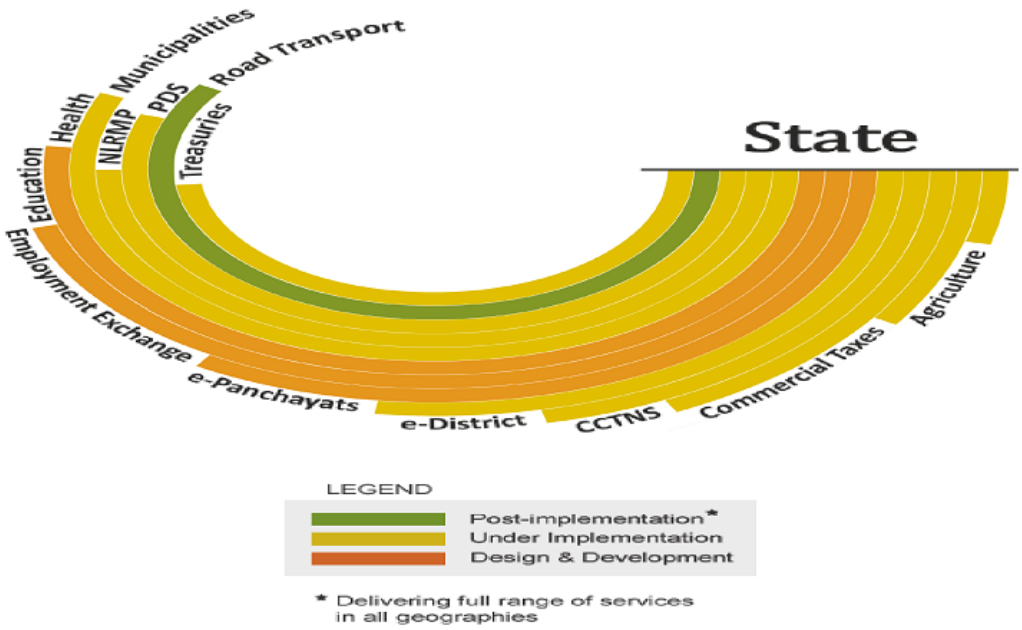


Figure 11. Implementation of MMPs in States in India, (INDG, 2014)

CSCs, though is one of the services having focus rural e-governance services, have provided insights to implement urban e-governance interfaces with citizens. CSCs, challenged by digital divides

Challenges

Implementation of NeGP in India faced enormous challenges. Though conceptualization and implementation plan were well articulated, NeGP was challenged by political divides with federal structure. In Figure 9 it is evident that state governments are yet to fully embrace NeGP and service deliveries. This has led to overruns in terms of time, resource allocations and utilizations. In most of the cases MMPs faced poor and isolated process re-engineering leading inadequate service orientation. However, some MMPs including Ministry of Company Affairs (MCA-21), Income Tax on-line, e-Passport Services, core banking solutions, on-line DMAT stock services and Indian Railways on-line Passenger Services show cased best practices. Learning from these best practices has been very limited with respect to convergence and integration.

Understanding challenges for NeGP implementation needs careful consideration of its deliverables in three layers of governance structure that India pursues and they are "Network", "Distribution" and "Access" as presented in Table 2. Network layer of NeGP has been significantly inadequate in terms of e-readiness and its supporting policy formulation, spectrum allocation, poor coordination and networking with SWANs and central Ministries, creating protocol and standards for seamless integration of services oriented for citizens. Islands of web-enabled citizen interfaces exist in almost all governments and

ministries at the national state governments having no agenda/roadmap for deployment of MMPs and integrated MMPs as envisaged. Performance of NeGP in the Distribution Layer has been limited due to poor preparedness in the Network Layer. However, National Informatics Centre (NIC), an agency promoted by central government has been successful in liaising with state and central governments and today on-line multi-media networks interfaces available on demand for government departments. E-Procurement services though are in islands, have been available as a standard process for all national and state departments. SDAs, SCAs, SPV and State Data Centres (SDCs) are yet to be well networked for rendering on-line and integrated services. Access Layer of NeGP, which is dependent on the successful deployment of services in network and distribution layers, has been seriously challenged. Inadequacy in rendering citizen services, inability to creating on-demand service portfolios and channelizing orchestrated services as per SoA and information asymmetry among citizens are still prevalent in Indian context despite NeGP interventions.

NEGP AND RURAL-URBAN CONTINUUM

NeGP envisaged support to rural-urban continuum for good and SMART governance. It is noted that all the MMPs, categorized as state, central and integrated are envisaged to be independent of rural urban geographic limitations. This two pronged approach envisaged two benefits, the first was to ensure uptake in services in urban areas and second, enhancing e-readiness in rural areas and creating opportunities for the citizens to gain access to NeGP. It envisaged that rural migrants to urban areas can pursue better quality of life and urban entities who look for business opportunities in rural areas can also gain in the process. Initial portfolio of e-services focussed on G2C, B2C, B2B and even C2C services and also mandated to roll out these services through CSCs. Panchayat Raj Institutions (PRIs), Peri-urban and municipalities also came under the jurisdiction of NeGP because of the matured governance and institutional frameworks India has. NeGP envisaged that it would be feasible for the rural sector to make use of knowledge resources, best services and processes available in the urban sectors like health and education; establish linkages with urban India for an effective supply chain for augmenting local primary production and livelihood systems in rural areas. NeGP also considered UCD related challenges that rural e-governance services would face and planned for institutional frameworks with VLE supported interfaces where each VLE belongs to the local community. VLE in NeGP is expected to be the link between citizens in rural areas and the service provisioning agencies and needs to inculcate desired trustworthiness by initially rendering G2C services followed by providing B2C services including inputs for supporting primary production systems in villages. As regards rural continuum with urban set up, VLE is expected to provide information symmetry related services to migrants, students, job seekers, citizen seeking health and medical attention, and exploring income generation opportunities. VLEs also is envisaged to support e-collaboration and e-participation services at the CSC to enable urban agencies to innovate products and services through market research inputs. It is argued that VLE possesses local knowledge through intensive and regular engagement with citizens.

CASE OF SAHAJ E-VILLAGE LIMITED

SeVL, as an SCA, contributes to NeGP. SeVL has been mandated to roll out 28,000 plus Common Service Centres (CSCs) across six states (Uttar Pradesh, Bihar, Odisha, Assam, Tamil Nadu & West Bengal in 107 districts) in India. SeVL has rolled out 26,066 CSCs till date. Each CSC is owned and managed by Village Level Entrepreneur (VLE). VLE is an enterprising individual from the same locality

and is selected through a rigorous process. CSCs are controlled by State Teams through Regional Coordination Centres (RCCs) at the district level.

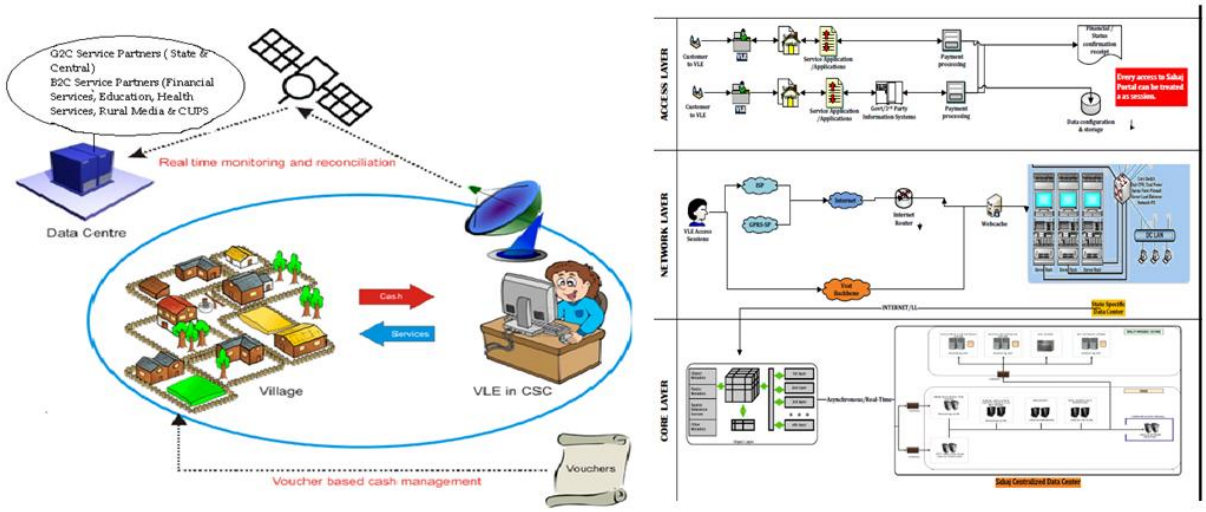


Figure 12. E-Governance Infrastructure of SeVL (Misra and Panigrahi, 2013)

The organization manages these CSCs through a centralized data centre as presented in Figure 12. Major services rendered include collection of electricity bills from consumers of various state level electricity distribution companies, Railway reservation services of Indian Railways, e-learning with Microsoft tools, facilitation of Insurance services and many other services co-created with the VLEs. Every CSC is connected to SeVL's Level 3 data centre situated in Kolkata. SeVL has been investing heavily on IT infrastructure and connectivity as technology. SeVL has three portals, balanced by world class ERP at back-end and well supported by Level 3 Data Centre and the VLEs are connected to the SeVL portal through broad band connectivity. SeVL has the capabilities for innovating services and deploy them on line for the benefits of citizens. Services rendered by SeVL are presented in Figure 13.

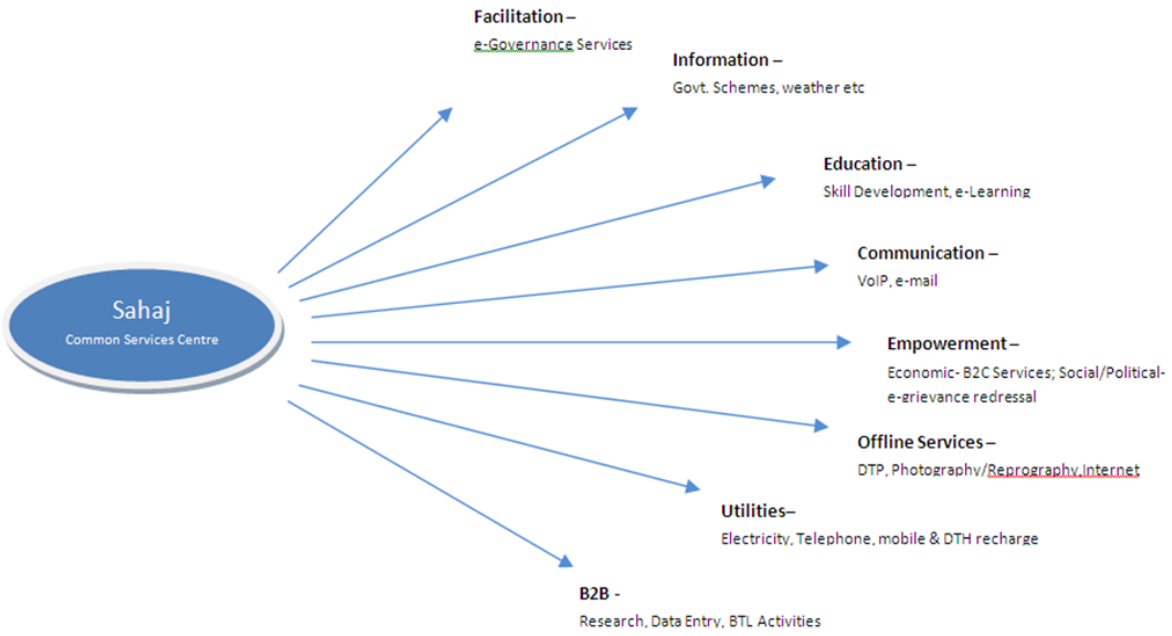


Figure 13. SeVL Services (Misra and Panigrahi, 2013)

It may be noted that SeVL has identified many services that support rural urban continuum. Most notably, skill development and e-learning services; DTP training through off-line mode, providing e-governance services as made available to the CSC through SDAs and SPV provide the ambience that can be helpful in per-urban and urban environment. However, there are many challenges that SeVL still faces for better services and these are in the areas of e-collaboration and e-participation as presented in Table 4.

Table 4: E-Governance Engagements of SeVL

SOA Attributes	Web 2.0 Attributes	Possible Effects through e-Learning	e-Governance	
			e-Collaboration	e-Participation
Service Demand	Participation-Collaboration	Citizen Perception to use and raise demand	Existent	Non-Existent
Service Aggregation, Orientation	Asynchronous Particle Update (the pattern behind AJAX); Collaborative Tagging	Enhancing capabilities of portal specific deliverables	Non-Existent	Non-Existent
Service Orchestration	Structured Information (Micro formats); Declarative Living and Tag Gardening	Assigning roles and accountabilities to websites under the portal	Existent	Non-Existent
Service Agency Collaboration	The Synchronized Web; Software as a Service	Service providers will be encouraged to add services for synchronization and orchestration	Existent	Non-Existent

Lack of web 2.0 and SoA supported services in the system e-governance services in India are quite limited in both the rural and urban sectors. Thus citizens in both these areas need spatial and sectoral improvements for effective delivery of e-governance services.

RECOMMENDATIONS AND FUTURE RESEARCH DIRECTIONS

This chapter presented e-governance scenario and discussed the opportunities, challenges in implementing NeGP in India. As per the proposed frameworks the study revealed scope for improvement in many areas and especially in supporting rural urban continuum. It is also argued in the chapter that NeGP though is severely challenged by digital divides; there is scope for e-governance interventions to foster citizen engagements. GoI has announced NeGP 2.0 (e-Kranti) with focus on inclusive governance, more citizen centred services, and importance on integrated MMPs with GIS interfaces. It is therefore, imperative to recommend that all the frameworks proposed in this chapter are relevant for NeGP v.2.0. The *first* recommendation is to note that NeGP is still grappling with digital divides and poor e-readiness which needs proactive audits through planned performance measurements based on these frameworks. *Secondly*, digital divides needs to be addressed on priority and SCAs could play a vital role in supporting this cause. Rural e-governance services through CSCs provided the insights to promote VLEs as entrepreneurs with a sustainable business and this learning would help in institutionalizing e-governance service networks in urban, municipalities and peri-urban areas. This would ensure a better rural urban continuum paradigm. In order to accomplish this, the *third* recommendation is to enforce "convergence" in infrastructure, services and institutions. CSC has showcased this as common delivery centre which can be considered important for urban set up. E-participation and e-collaboration are two major impediments of NeGP and these two issues without ICT interventions are well pursued in rural set up through social cohesiveness. Therefore, the *fourth* recommendation is to promote social and institutional arrangements in urban e-governance environment to foster e-collaboration and e-participation. The *fifth* recommendation is finding disruptive technologies, tools and applications for rural urban continuum and these are mandatorily to be supported by web 2.0 features and SoA architecture based. In Indian context, none of the NeGP services are totally disruptive and thus has left scope for improvements. Web 2.0 and SoA principles advocate for user centeredness and therefore, they need to learn from social set up in rural areas. The *sixth* recommendation is for role clarity and accountability among NeGP constituents. All the constituents in NeGP are yet to support each other to add value in rendering e-services. SPV has been drifting away from its role to coordinate among SCAs, state and central governments and channelize back-end integrated support to the SCAs. It has been ineffective in deploying MMPs as envisaged. SCAs are struggling to provide services because of lack of coordination that SPV is expected to ensure that VLEs run the CSC as a strategic business unit (SBU). Lack of adequate G2C services in CSCs has adversely affected trustworthiness among citizens in VLEs as citizens consider them as a commercial entity looking for transaction centric relationships. This has cascading effects on introducing innovative services through VLEs that SCAs plan as per NeGP mandates.

The future research direction is two-fold for this study. Firstly, the NeGP in India has provided insights to policy paralyses, poor planning project management and most of the services are supply-driven. Thus the one of the important research agendas is to benchmark the NeGP under web 2.0 and SoA principles and generate measurements standards for understanding the agents for successful NeGP. The second important research direction is to relate NeGP interventions for sustainable development. While both sustainable development and e-governance paradigms are well researched, their contributions to rural urban continuum need sustained research.

CONCLUSION

This chapter focused on India's NeGP, its supporting environment and the process through which it is being implemented. It also presented the digital divides that India is still grappling with and NeGP v.2.0 in India tries to implement with more focus on citizen centeredness and MMPs having integrated e-services. The chapter also focused on rural urban continuum and suggested that any e-governance plan should ignore this phenomenon and suggested the ways to crate enabling environment for better rural urban interfaces. In order to accomplish this task, the chapter discussed various recommendations and suggested future directions to make e-governance plans more citizen centred.

REFERENCES

Braun, J. V., (2007), Rural-Urban Linkages for Growth, Employment, and Poverty Reduction,

Beñat Bilbao-Osorio, Dutta, S., and Lanvin, B. (Ed.), (2014), The Global Information

Technology Report 2014, Rewards and Risks of Big Data, INSEAD, France

Chang, A., and Kannan, P. K., (2008), Leveraging Web 2.0 inGovernment, E-overnment/technology series, IBM Center for The Business of Government. http://www.businessofgovernment.org/pdfs/ChangReport2.pdf accessed on 20/09/2013.

Dewey, R., (1960), The rural–urban continuum: Real but relatively unimportant, American Journal of

DIT, (2011), E-district Guidelines for National Rollout, Department of Information Technology (DIT), Government of India, New Delhi.

DIT,(2014), http://www.indg.in/e-governance/e-governance/egov-prod

Eggers, W. (2005), Government 2.0: Using Technology to Improve Education, Cut Red Tape, Reduce Gridlock and Enhance Democracy,New York: Rowman and Littlefield Publishers.

European Union (EU), (2007), "Inclusive e-Government: Survey of status and baseline activities", European Commission, DG Information Society and Media, e-Government unit, December, Fifth International Conference on the Ethiopian Economy, June 7–9, United Nations Conference Center, Addis Ababa

Garlan, D. and Shaw, M. (1994), An Introduction to Software Architecture. Research paper, School of Computer Science, CMU-CS-94-166. Pittsburgh, Pennsylvania: Carnegie Mellon University

Governor J., Dion, H., Duane, N., (2009), Web 2.0 Architectures: What Entrepreneurs and Information Architects Need to Know, O'Reilly; 1 edition, ISBN-10: 0596514433

Heeks, Richard and Alemayehu Molla (2009) "Impact Assessment of ICT-for-Development Projects: A Compendium of Approaches", Working Paper 36, Institute for Development, Policy and Management (IDPM), University of Manchester.

INDG, 2014, India Development Gateway, http://www.indg.in/e-governance/e-governance/egov-prod accessed on 12 August 2014

Mehdi, K., (2005), Practicing E-Government-A Global Perspective, Idea Group Publishing, London, ISBN: 1-59140-637-4.

Misra, H. K., (2010a), Role of Information Systems Architecture in E-Governance: The Case of MGNREGS in India. The 4th International Conference on Theory and Practice of Electronic Governance (ICEGOV2010), Beijing, China, 25 - 28 October 2010. Published in the Proceedings of ACM.

Misra, H.K., (2010b), Understanding SOA Perspective of e-Governance in Indian Context: Case Based Study, Book Chapter, Book Title "User Interfaces", ISBN no. 978-953-307-084-1, published by IN-TECH, Vienna.

Misra, H. K., (2013), Emerging Role of Systems Thinking Oriented E-Governance for Supporting MDGs: Learning in Indian Context, The 7th International Conference on Theory and Practice of Electronic Governance (ICEGOV2013), Seoul, South Korea, 22-25 October. Published in the Proceedings of ACM.

Misra, H. K., and Panigrahi, Sanjay, (2013), Mediating Rural Citizen Participation in e-Governance: Case of Sahaj e-Village Limited, IAMCR - 2013, Dublin City University (DCU), Dublin, Ireland, 25-29 June.

Misra, H. K., and Panigrahi, Sanjay, (2014), Citizen Engagements and Participation in Indian e-Governance with an Architectural Perspective: Case of Sahaj e-Village, CeDEM - 2014, Krems University, Krems, Austria, 21-23 May.

O'Reilly, T., "What Is Web 2.0," Retrieved from http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html accessed on 20/09/2013.

OECD, (2003) Promise and Problems of E-Democracy: Challenges of Online Citizen Engagement, accessed on 24.02.2014 from http://www.oecd.org/governance/public-innovation/35176328.pdf

Pahl, R. E., (1966), The rural-urban continuum, Sociologia Ruralis, pp. 299–327.

SESRIC, (2010), E-Government Development and E-Participation The Performance of the OIC Member Countries, Statistical, Economic and Social Research and Training Centre for Islamic Countries, (SESRIC), Ankara.

United Nations, (2010), The Global Partnership for Development at a Critical Juncture. MDG Gap Taskforce Report, United Nations, New York.

United Nations, (2011,) Millennium Development Goals Report, New York.

West, D.M., (2008), Improving Technology Utilization in ElectronicGovernment around the World, 2008, Governance Studies, BrookingsInstitution, Washington, DC

Technology democratizes information and promotes transparency in public management

Our São Paulo Network – Sustainable Cities Program

Brazil

Abstract

The Sustainable Cities Program (PCS) is the first initiative in Brazil to raise awareness, mobilize and provide tools for the Brazilian cities to develop more sustainable processes that meet the requirements of alignment and interdependence between the economic, social, environmental bases, and democratic governance and a new citizen culture.

The Program offers an agenda for cities sustainability that handles different areas of public administration, via 12 thematic foundations, which counts with basic and general indicators. To build a successful public management, capable of improving the quality of living, the cities need to use the platform/software designed for the insertion of the indicators and to adopt planning methods, as the Goals Plan. The indicators enable monitoring municipalities' evolution and their accomplishments, besides a comparative analysis between them. Currently, there are 269 municipalities as signatory making diagnosis of their cities and committing with the goals of the Program. The ultimate goal is to make information, updated and accurate, a powerful management tool.

Keyword: Sustainability, participation, transparency, governance

INTRODUCTION

Conduct a public management in an efficient, transparent and sustainable way has become an increasingly urgent duty for managers. The fact of half of humanity living in cities is one among several reasons that currently makes complex the reality of same. According to data of the United Nations (UN), in 2030, 60% of the population will be urban and in 2050, the total must be 70%. Today, in Brazil, the urban population reaches 85% and as the cities grow in size and population, it also increases the difficulty of maintaining the spatial, social and environmental balance.

Brazil has assumed a new format of management of public policies, from the decade of 1990, setting itself up as part of the process of institutional redesign implemented and legitimized by the Federal Constitution of 1988. This new format established the decentralization and participation as main axes of the democratization process of the Brazilian public management, considering the three Government spheres: federal, state and municipal levels. That's why to succeed in management, especially when the people in charge manifest the desire to commit themselves with innovative and participative policies,

aiming at the sustainable development of the municipality in several dimensions, it is crucial the promotion of practices involving organized civil society, business sectors with social and environmental responsibility in the territory where they act, universities and community leaders in a way that the ethic of co-responsibility can be implemented broadly, consolidating the local citizen culture.

On the way to this new management model, these social actors must empower and develop tools and practices, so that they can monitor and assess the evolution of the quality of life, public policy and budget execution. This challenge can take place through the survey and monitoring of indicators, which should be easily accessible in online platforms and, thus, providing and encouraging broad dissemination in the media, so that all interested citizens can meet and interact with municipal policies, their impacts and results throughout the management, as well as developing its evaluation capacity. With this, it is remarkable the importance of building a network of information, monitoring and social control by the local civil society, which must be active part in the implementation of public policies.

In this context, the Sustainable Cities Program (PCS), one of the Our São Paulo Network (RNSP), offers the necessary tools and proposes an agenda for sustainability in which municipal governments commit to survey, organization and provision of information relating to the respective municipalities. Also, from these organized data, advises managers to formalize the planning of its actions in a clear and transparent way so that the population can monitor progress through the local observatories.

It is important to mention that the innovative PCS initiative gains strength when tied to Law historic achievement in the Executive Plan of the city of São Paulo with the Amendment to the Organic Municipal n.30, created and stimulated by Our São Paulo Network. It is the consolidation and establishment of compulsory preparation and fulfillment of Goals Plan for the city as a tool which allows the public administration to rule supported by indicators with targets and specific goals, promoting sustainable development, social inclusion, human rights, urban mobility, among others and must be presented to society in the first 90 days of the mandate. In addition to this determination, it is essential that the Goals Plan be available in an openly and transparently way to monitoring by society as a whole.

After São Paulo determination, other Brazilian cities have adopted the legislation and currently have Goals Plan, example also followed by Latin America cities, as Cordoba and Mendoza, in Argentina. Besides the cities that have deployed the Goals Law, there are other Brazilian cities that do not have specific legislation but, even so, they prepared a Goals Plan by encouragement of PCS, as Porto Alegre and Recife. Even in this respect, it is worth mentioning that is in the final processing in the National Congress a Bill of Amendment to the Constitution (PEC 52/11) which establishes the mandatory presentation of the Goals Plan for the Federal, State and Local Governments spheres.

That being said, the purpose of this article is, from experience of PCS in several municipalities, analyze the urban reality, report and evaluate e-governance mechanisms used for the advancement of management, as well as to the improvement in the quality of life of the population, by means of transparency, exchange of information, access and data comparison and, mainly, to advance a participatory and democratic governance.

BACKGROUND

"Observing the city we noticed that it is simultaneously territory and population, a material framework and a unit of collective life, configuration of material objects and node of relations between social beings." (Grafmeyer, 1994, p. 13). I.e. the interrelationships promoted by urban life are more complex

than mere meetings among its residents. Is in the city that citizens must learn to respect each other, to share spaces and develop the zeal for the common good.

In Brazil, the complexity of cities is even more contradictory. And it is possible to notice in the fast and progressive urbanization. Most of its municipalities have a large territorial extension and comprise transition areas and significant rural areas, where the large Brazilian agricultural production is developed and all the natural wealth of the country is preserved. At the same time, it is in the city that the consumption is even more stimulated, which its residents wish to increasingly facilitated access to material goods and the dispute between residents conquers space in place of the collectivity which should be the base of urban life.

The big cities we know nowadays – and which constitute at the same time a political center, administrative, cultural and economic – are an invention of modernity. Often, they are too tough with its inhabitants who often describe them as unhealthy, violent, difficult, ugly, polluted, noisy, unsafe and unfair, while should offer all the advantages of collective life and increasingly facilitated access to the services expected by the population.

It is necessary to propose a comprehensive and satisfactory management with regard to collective interests, if the intent is to make the provision of a safe and inclusive city. In this way, it is possible to think about using some tools that make it feasible for the public administration to exercise democratic governance, with a comprehensive future vision of the city as a whole. Tools such as urban planning, goals plan and indicators evaluation will assist to solve the challenge to govern for all and with the broad participation of society.

According to Henri Lefebvre, the right to the city expresses itself as a superior form of rights, since are implied in these the rights to freedom, to individualization in socialization, work and ownership. "We have ahead of us a double process or, if you rather, a process with two aspects: industrialization and urbanization, growth and development, economic production and social life. The two "aspects" of this process, inseparable, have a unit, and, however, the process is conflicting "(Lefebvre, 2001, p. 9.)

To achieve the right to the city presented by Lefebvre, the Sustainable Cities Program proposes a path of a greater social equity and environmental, in which the entire society be part of decision-making processes with planned and transparent actions. In this way and for municipal public management be really successful, the PCS proposes planning methods that are able to generate good results. That will be possible only with a reading of the territory and organization of public debates in which the information might circulate and collective interests are taken into account. An efficient reading of the territory as well as the proper circulation of information is the path to a democratic Government and for the construction of a fair, democratic and sustainable city.

Analyzing the development path of PCS, it is possible to better understand the current scenario of cities and the need to deploy tools that facilitate management, as well as access to information to occur the desired changes and to emerge the quality of life among so many difficulties imposed nowadays to the municipalities.

To encourage participatory governance model, the establishment of a planning and greater agility management, Sustainable Cities Program proposes to signatory municipalities the survey of a set of indicators relating to social, economic, political, environmental and cultural areas of cities, divided into 12 thematic axes. The objective is to provide tools so that they can draw up a detailed diagnosis in order

to enhance the knowledge of public managers about the reality of the municipality, as well as the identification of priorities and, thus, facilitate the construction of its Goals Plan. In addition, PCS offers several successful examples, both national and international, that can serve as a stimulus to be replicated. These showcases are available on the website of the Program as Best Practices http://www.cidadessustentaveis.org.br/boas-praticas and are always presented during the trainings courses performed by PCS team in municipalities.

The training courses made with managers and technicians from the committed municipalities to the program have the purpose to instruct on the importance of organized information. This includes the collect of information (indicators of the municipality), the evaluation and application of indicators in the design of the strategic planning of the city and of the Goals Plan, as well as the insertion of these in data platform (software) provided by PCS. With this computerization, which culminates in the development of observatories, it becomes possible to make the diagnosis of the municipality, clearly, for the population.

It is worth noting that the Sustainable Cities Program is the first initiative in Brazil to propose an integrated set of tools for debate and intervention in municipalities, including diagnosis, planning, monitoring, and accountability through guidelines and indicators.

E-GOVERNANCE: A PATH TOWARDS MORE SUSTAINABLE CITIES

Focusing on the Sustainable Cities Program

The Sustainable Cities Program has begun in 2011, through the signing of commitment letter of candidates for mayors and political parties, which have pledged to implement the program if elected. In practice, this letter represents a commitment on the part of the municipal administrations in working management priorities that take into account the Sustainability in its economic, social, environmental and cultural dimensions, according to the local context. And currently continues to be the linking tool of municipalities of PCS, in which managers shall assume concrete commitments and the citizens monitor the results of these commitments.

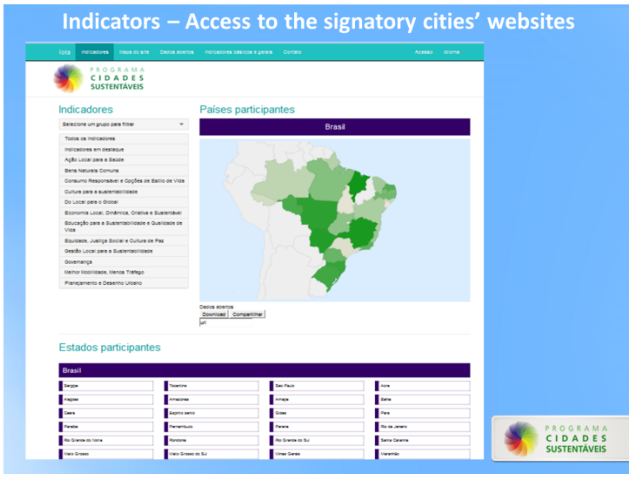


Figure 1 – Indicators - Access to the signatory cities' websites

Figure 2 – Indicators – Signatory Cities

In order to respond to this demand, in the quest for a fairer society, the Sustainable Cities Program, based on an agenda for sustainability, offering an integrated set of management tools and intervention in the city for diagnosis, planning, monitoring and accountability, by means of guidelines and indicators, covering the different areas of public management in 12 thematic axes.

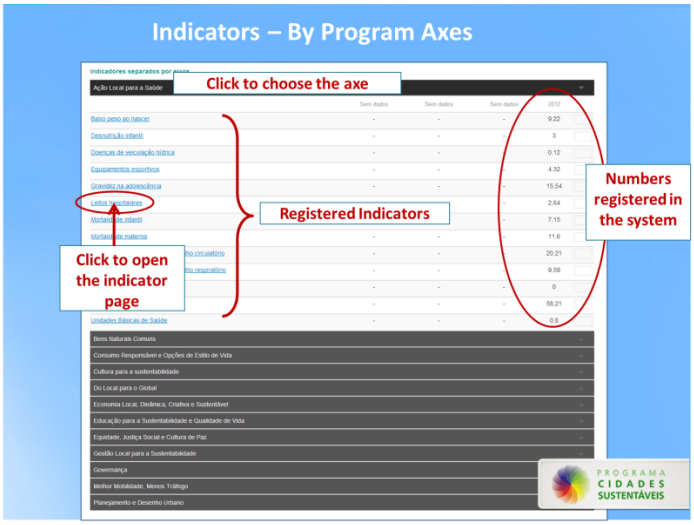


Figure 3 – Indicators – By Program Axes

Since the beginning of the Program until the current moment, it was noted that the organized information acquires a fundamental importance at the various stages of the process of governance. In this sense, the PCS considers new management tool and guarantee of duties imposed by recent laws. A tool for implementing a transparent management is the Access to Information Act, n. 12.527/2011. It regulates nationally the right to public information, which is already provided in the Federal Constitution of 1988.

The disclosure of public interest information should be accessible to anyone, including with the use of technology. In this way, the law aims to, among other things, reduce the cases of misuse of resources from the opening of the public management data to society. Another appropriate tool for generating

information and real analysis of social needs is a survey and evaluation indicators. These instruments assist the consolidation of a more active and participant society in the public administration field.

The formulation of indicators proposed by the PCS allows organizing the information, classifying the collected data, assessing challenges, and knowing probable problems as well as the potential of each locality. The indicators enable monitoring municipalities' evolution over time and their accomplishments, through their historical series, besides a comparative analysis between them and their districts or neighborhoods. There are 100 basic indicators and more than 300 general indicators in the 12 axes proposed by the Program to make feasible to managers a global view of the territory and thus facilitate the construction of integrated public policies for the solution or improvement of problems.

For instance, the "Natural Common Goods" axis, between various indicators, proposes the survey of information concerning to public supply of drinking water in the urban area, the network of sewers and sewage that does not receive any kind of treatment. These indicators are related to the axis "Local Action for Health" which proposes the survey of disease with placement in liquid. Comparing all of this information, in an orderly manner, enables to evaluate the city difficulties and proposing policies that will interfere with the environment and inevitably improve the citizens' quality of life. Another example that can be given is associated with the "Planning and Urban Design" axis which proposes raising the deforested area indicators and the reserves and protected areas. The environmental issue in the planning of the municipality will also reflect on improving the quality of life of the population, integrating public policies.

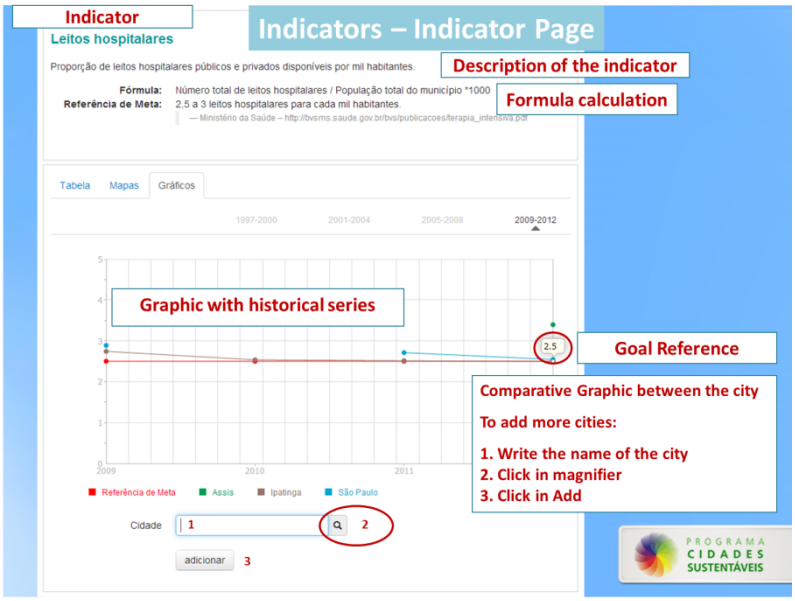


Figure 4 – Indicators – Indicator Page

The varied experiences of participatory democracy that have arisen in recent decades demonstrate the gains that the participation of civil society offers to the public administration, which is why the proposal of the Program becomes more comprehensive, since it allows this action and monitoring by the people in acts of the Government. In addition to contributing with proposals, ideas and participate in debates and some decisions, the participatory processes build the ethics of co-responsibility and zeal by the collective. In this sense, the indicators constitute a valuable instrument for civil society can be able to evaluate the

best and worse points of the municipality and thus strengthen social control. Contributing to the creation of effective participatory governance raises significantly the quality of public management and, consequently, of the municipality and the living conditions of its population.

On PCS, the indicators should be inserted on the Indicators Platform (Iota) which allows the manipulation of indicators, with the aim of facilitating the sharing of data for viewing, comparing, and reuse by means of open technology standards. It is possible to monitor, step by step, year by year, the quality of life in the city, social policies and municipal public management, in order to provide important tools to civil society and public managers to exert a real influence and collaborate on prioritization of goals and resources in public policies, with the objective of participatory construction of a fair and sustainable city

After evaluating the importance of indicators, figure out how to build them and diagnosing the reality of municipality in an organized and transparent way, the next step is to build a Goals Plan. The goals must be laid down in accordance with the municipality with the vision to overcome challenges and identify paths that lead to the desired future. Every well-designed goal should always consider the time to be executed, the territory where benefits or impacts, its articulation in various areas of management, its cost and budget forecasting, its permanence and validity also in the medium and long deadlines.

For that, PCS proposes the creation of Municipal Observatories that besides allowing the analysis of the municipality in various areas, should contemplate the process for monitoring and evaluation of performance of the Goals Plan, enabling the population to control public expenditure and evaluate government programs, stimulating social control. On the other hand these same information subsidize the technical and political action of those involved and thus contributes to the democratic advances. Formally, an Observatory may be a government agency, part of the structure of a university or an NGO, can be composed of mixed form or by an independent association or a set of bindings with collective interests. However, it is crucial that the cities organize their own Observatories, preferably managed by a Council in which there is participation of various segments of civil society, universities and Government agencies.

In Brazil, the city of Porto Alegre is as a good example of successful Observatory. In this signatory city, the Observatory named ObservaPOA,http://www.observapoa.com.br/default.php created in the year 2006, offers a broad base of georeferenced information about the municipality of Porto Alegre, contributing to the consolidation of citizen participation in the management of the city. The ObservaPOA also provides indicators that are able to qualify the participatory management (OP, Municipal Councils and Local Solidarity Governance) from three perspectives: (1) social – impacts on improving the quality of life and coexistence of people; (2) management – impacts on effectiveness, transparency and decentralization of municipal management; (3) political – impacts on democratic development and citizenship, social capital expansion and recovery of local identity.

The Sustainable Cities Program (PCS) is an initiative that assumes a change of political culture in the country, once proposes on an agenda in which the sustainability appears as transaxle of actions and initiatives, creating a systemic approach able to assess existing interactions in economic, social, cultural, ecological, technological fields, among others. PCS offers to the local government the necessary tools for the consolidation of its planning in an open and participatory way, which includes the search for information and formulation of city indicators, the implementation of open observatories with the developed indicators and, finally, the availability of several national and international successful experiences that can be replicated in other municipalities.

Systematically, the tools provided by PCS are:

• **Sustainable City Platform** – agenda for cities sustainability that handles different areas of public administration, via 12 thematic foundations and that incorporates, under an integrated fashion, social, environmental, economic, political, and cultural dimensions;

• **General and basic indicators** associated with the platform foundations;

• **Exemplary cases and local and international references** for good practices and excellence in public policies that are reflected in the city's indicators;

• **GPS Guide** – Sustainable Public Management Guide - 12 videos and a publication to support the implementation of PCS;

• **Guide to Indicators System to the Construction of Observatories** – publication to be used in the training courses.

Currently, there are 269 signatory cities, making diagnosis of their cities and committing with goals based on a minimum set of basic indicators.

Issues, Controversies, Problems

If evaluated, this initiative has a remarkable progress in the signatory municipalities of the Program, especially with regard to organized information and made available. According to the current data of PCS:

• 50% of 269 signatory cities already have the password on the system to register the information and creation of the observatory;

• Considering the 132 cities that have password access to the system, 81 of them have started filling the Indicators Platform /Software (Iota).

• 65% of 81 cities that have started filling, did more than 50 % of the 100 basic indicators in software, and 21 cities of that group already have elaborated their Goals Plan;

• A total of 29 cities have already drafted their goals plan and 06 of them have included the goals plan in the Municipal Organic Law of their cities, consolidating a new reference of public governance;

• 36 cities have started filling and provided specific indicators of their region to more than 100 basic indicators available on the platform.

Based on this fact, it is possible to assess progress on work accomplished, but that still requires time to implement so magnified. Also it is worth noting that there are still challenges ahead to a distinguished work as the use of indicators and goals, since it includes a strategic planning based on an integrated, practical and unusual approach in government bodies, in addition to the proper use of the Program tools, as the indicators data platform created.

On the other hand, the importance of this cultural change in their way to govern can be seen in various cities around the world. A good example is Angers in France, a city with 150 thousand inhabitants which has one of the most important mechanisms of control and social participation. In the city there are more than 1,500 NGOs working to improve the process of social control over public policy and accountability about what so-called shared management. In this process, among other actions, was developed a Charter that defines the relationship between public authorities and citizens of the city, defining mutual commitments.

Among Brazilian cities some stand out in that direction as the city of Canoas, Rio Grande do Sul, who released The Àgora in Network, a virtual tool that allows the online dialogue between the population and the managers. The Àgora also allows open forums for discussions, spaces for chats, video access, among other media possibilities for interaction about issues involving the city.

Before these good examples of open, participatory and transparent governance, it is important to clarify that the city itself and its inhabitants are harmed in the case of the city fail to comply with the commitment made by the Program. For this reason, and in support of the sustainable development of any municipality, the PCS always tries to act in coordinated networks with civil society, which should be the main public stock supervisory and search local partnerships that assist in the collection of the commitment of the public authorities with the Program.

In fact, it's quite a challenge to make the municipality complies with the commitment, especially in Brazil which has a tradition in representative politics, which shows much less laborious than participatory politics. However, the need for behavior change and the duty of the entire population take joint responsibility, drives the good acceptance of PCS in both public authorities and the population.

It is important to emphasize that the Sustainable Cities Program is also a civil society initiative, once it doesn't have financial support of public governmental instances and constantly seek private funding to develop and maintain its actions. Although there is awareness of the need for expansion of the initiative to encompass the rest of Brazilian municipalities that haven't committed themselves with the PCS, the States and the Federation, in the complexity of ecosystems and biomes that make up a country like Brazil, to do so, requires a constant suitability and qualification of the proposal, as well as the team, which affects to a greater need for funding. This has been a big challenge imposed on the institution. It is worth noting also the institutional commitment and mobilization, as well as investment, for the initiative diffusion that aims to raise awareness and provide tools and training to Brazilian municipalities, committed to PCS. Especially importance attributed to the network of social movements, organizations and companies that support and disseminate the cause. Currently, there are a total of 53 social movements of the Brazilian and Latin American Networks which work actively in the survey of indicators and social control.

Solutions and Recommendations

With regard to indicators, it should be noted that the work of systematization and insertion of basic information on the Indicators Platform by the municipal administrations, accentuates a new routine of work for public managers, namely, the work of consolidation and analysis of public data. As a rule, in Brazil, the municipal public managers do not have the culture of planning, systematizing and analyzing data generated both by its management, and the previous managements. Furthermore, this is the objective of the Indicators System of PCS: strengthen the planning and use of data, targets, indicators and indices on public management.

The intended concept in PCS is the understanding that for any development planning process and to propose changes, amendments and alternatives to municipal public policy is more than necessary to know not only the territory, but also the profile of its population, as well as the qualitative and quantitative indicators of the policies pursued.

As much as overall is still diminished use of data and indicators so that the public authorities think their actions, there are changes in recent years in cities and specific territories that often point to the creation and use of systematic planning and monitoring of public policies based on indicators and goals that

elevate the quality and capacity of intervention of municipal administrations. In this way, the PCS represents a tool of extreme relevance for the strengthening of the "new culture" of public administration. Ergo, to consolidate and systematize the information and public data to insert them in the system of indicators of the PCS, the municipal administrations deepen and broaden the knowledge about the city and its dynamics.

Besides the process of systematization of information for inclusion on the Platform be fruitful to municipal managers, the Indicators System also enables the analysis of indicators comparing them with indicators from other cities, and/or, with the Reference Indicators - established by international agencies or by federal ministries as benchmarks to gauge municipal indicators.

The possibility of conducting analyses and comparisons with other cities or Reference Indicators allows the public manager "to locate" the city or its income in a particular theme, such as the number of hospital beds available, or the average of the air quality of the city, etc. This comparison can be in national, State or regional scenario. Thus, "locating" income and the city indicators compared to other public, managers have more clarity what is going well and what is not going well in the municipality, giving legitimacy to the establishment of priorities, and actions of short, medium and long term.

In addition to the comparison and analysis of indicators of a city with others, or with a region or State, the Indicators System also enables the public manager to make comparisons and analysis in the last years, since the system allows the insertion of historical series of data and indicators. Because of this, at the end of a term (which in Brazil lasts 4 years for executive positions) both managers and population can make analyses about the advances and challenges met or not by the administration, prioritizing, again, the main actions for future managements.

More than parse the data entered on the platform PCS just by the fact of public managers know they are being "monitored", and that the qualitative and quantitative indicators of their policies and actions are being disseminated and accessed by citizens, the posture and the responsibility of the city's changes. And the empowerment and mobilization of the population grows stronger.

Based on the above considerations and in the process of solving the presented problems, as well as increasingly stimulating municipalities to deploy this program, the team has been committed to empowering managers and municipal technicians to develop the Program's signed commitment and thus enforce the implementation of the provided actions. The Government team gives importance to indicators information, which can impact directly in the decisions of the management, by understanding the functioning and the method for data feed. According to Ladislau Dowbor, what counts "[...] It's not just produce indicators that are meaningful to the population, but provide communication tools of these indicators that would effectively allow its appropriation". (PNUD, 2013). The training course “Sustainable Public Management” include teaching and information materials developed in the form of videos and booklets on each of the 12 thematic axes of the PCS and it is divided into two phases, a Theoretical training and other Technical training.

The Theoretical Training covers 03 modules. The Module 1 seeks to address the foundations of the Sustainable Cities Program and Strategic Mapping of the Municipality, through the presentation of the Sustainable Cities Program, as well as the strategic planning for the program and the mapping of the municipality. The Module 2 seeks to develop the foundations of governance and local administration addressing the theme of transparency and the importance of access to information, as well as the tools of participatory governance. Module 3 details specifically the 12 thematic axes of the Sustainable Cities

Program, allowing the understanding of the approach as a whole. The Technical training covers a single module, Module IV, directed to technicians of the management who are responsible for completing the indicators in the system/software. Presents a walkthrough for the inclusion of indicators in the system facilitating the insertion of open data and information easily accessible and thus opens the possibility for creation and deployment of Observatories, the inclusion of data until the structure of the system with the formulas used and the purpose of the variables that make up the indicators. It details the way it is possible to register new variables and new indicators, according to the needs of the city, and how the system makes it possible to insert local good practices, information and regionalize indicators by regions, allowing the evaluation for areas within a same city.

Thus, the focus of the training courses is the overcoming of difficulties that municipality team may have. The methodology used in the training courses addresses the search and formulation of indicators, the systematization of all information, planning and execution of the Goals Plan, as well as the monitoring of these. At first, the material used in these courses is the Sustainable Public Management Guide (GPS), drawn up especially for this purpose. However, was made a complement material relying on more technical information, the Guide to Use of the Indicators System for the Construction of Observatories, with the objective to show in a straightforward language the importance of indicators for the municipal administration, as well as for surveillance and social control of public policies, in addition to serve as a source of information and knowledge of local reality, written to facilitate the use of platform, purposely built with open software, in order to allow the creation of new indicators for its users, meeting the needs and specific features of each region.

Regarding to the implementation of the Program methodology through the GPS training course to public technicians and managers of the signatory cities, has a total of 13 States with trainings conducted by the team of the Sustainable Cities Program - Acre (AC), Bahia (BA), Ceará (CE), Goiás (GO), Maranhão (MA), Para (PA), Paraná (PR), Piauí (PI), Rio de Janeiro (RJ), Rio Grande do Sul (RS), Santa Catarina (SC), Espírito Santo (ES) and São Paulo (SP). More than 130 cities have already been trained and among the 70 cities with greater participation in PCS, it is possible to highlight that 22 of them have filled more than 90% of basic indicators (composed of 100 indicators); 32 cities have met between 50% and 90% of the indicators and 16 cities filled between 15% and 49% of those indicators.

With respect to the elaboration of the Goals Plan, this group of 70 cities in featured, 25 of them have already developed and provided their plan, in order to draw the goals of the municipality to their respective indicators.

The program proposes major challenges and, to be successful in relation to actions that contribute to sustainability, it is clear the need to involve and empower the set of social actors, citizens, social organizations, companies and Governments. However, no local association is possible and true if there isn’t a deep knowledge of reality, articulated and systemic. For this reason, it is essential the open information generation and based on the aspirations of society – only in this way will it be possible to consolidate a social control in a participative and constructive way.

Therefore, public management, initially, have to commit to the program, understanding its importance and devoting itself to a diagnosis of the city to seek and evaluate the indicators, to plan and monitor the goals and mainly render account to society. It should be noted that there is no cost for membership of municipalities; on the contrary, these receive free technical support by means of trainings to managers and technicians to assist the work following the principles of the PCS.

The Program encourages the participation of civil society in decision-making spaces, in the monitoring and evaluation of public policies in the signatory municipalities and also provides tools and information for social segments of cities meet conditions of incidence to contribute with managers, including the monitoring the progress of each mayor commitment. This is one of the reasons to make the platform sustainable cities available in open data format. Although there is no guarantee of the involvement of citizens, there are mobilization and dissemination actions which aim at enlarging the engagement of the proposal of the Program by the signatory cities. In addition, the growing number of cities that are committed to the initiative, including countries of the Latin American Network for Fair, Democratic and Sustainable Cities and Territories, that use the Indicators Platform (Iota), qualifies positively the results of the deployment of PCS.

What leads to the conclusion that the tools and instruments developed so far has gotten high degree of effectiveness, credibility and transparency, both for the monitoring and supervision of the work of civil society as to significantly improve the capacity and quality of public administration. In this way, it becomes feasible the cooperation to transparent management, in accordance with the Federal Law of Access to Information, n° 12,527/2011.

After establishing a work methodology in the municipal instance, the responsible team should perform the previous steps, the data input in the Observatory, as well as to monitor the Program and, strengthened by society, must ensure the sustainability of actions. This will also depend on the Government's commitment to maintain the Program and dialogue with civil society to monitor and enhance the initiative.

Future research or operational directions

Due to the increasing use of information technologies as internet, a very large number of people are motivated to seek information through these channels. Among the advantages of this process, the agility and the possibility of interaction are some of them, besides the transparency in the availability of data.

Certainly, citizens become more sensitive about their rights and duties and shall charge the Government the implementation of what has been promised. On the other hand, the computerization of information facilitates the Government to answer clearly and in a transparent way to the public. In this way, the Our São Paulo Network is producing new tools to encourage transparency, democratization in the management of public policies and citizen participation.

One of them is the website "An Eye on Goals" for citizen participation. This is an instrument to monitor public policies and the budgetary execution for that significant portion of the population can read, interact and assess municipal policies, its impacts and results along the management period (4 years in Government). The idea is to expand the monitoring of the Goals Plan, which determines that the campaign promises of the candidate for mayor be planned in the form of goals and presented to society within 90 days of taking office. This site will comprise a Monitoring System to store and to manage access to all the information related to the goals established by municipal govern, providing monitoring, interaction and the participation of the society, organizations and individuals, by means of technology/software use and will also comprise a Organization of Campaign System to facilitate the achievement of civil society organizations campaigns based on data from the Monitoring System. This project has already provided for replication to the countries of Latin American Network for Fair, Democratic and Sustainable Cities and Territories, given its importance

The systems pursue certain challenges that still exist with regard to the transparency of the data, as well as of social control of the same. One of them refers to share information, since there is a significant portion of the population that doesn't know the goals, for example, nor understands its impact on the political actions, or that, in spite of knowing, doesn't get how to question, suggest or contribute to real implementation of the goals or the promises. Another challenge is to enable, through access to a system that concentrates the information necessary for tracking the public acts, that civil society organizations contribute in its spread and active engagement of the population with themes and relevant issues. And, finally, the main challenge is to ensure that new technologies and social media can help raise awareness, inclusion and citizen's participation, once there is the problem of digital inclusion in low-income populations, as well as lack of proper tools to help the grassroots organizations to do their work more comprehensively and effectively.

CONCLUSION

Our São Paulo Network arose from the perception that the credibility of political activity in Brazil, public institutions and democracy was shaken towards society. The need of promotion of initiatives that promised to recover to society the values of sustainable development, ethics and participatory democracy consolidated the Network as one of the precursor organizations with the proposal to strengthen the articulation of a broad social field for common objectives.

In recent years, many Brazilian municipalities presented civil society initiatives to fight corruption, to control of public expenditure and to evaluate the quality of government programs. Thus, democracy and economic efficiency, as well as technical and political decisions, are increasingly side by side in Brazil due to recent social and political developments. This is due to the understanding that a change of political culture in the country, is possible only through the empowerment of civil society organizations and social movements, councils, among others, that along with the use of technology for social control, will result in the democratization of management of public policies, by means of social justice and sustainability.

In this perspective, develop tools able to provide indicators, disseminate information, map, qualify and strengthen the participatory bodies, in an accessible way, becomes crucial, especially to social movements and NGOs that seek to enlarge the decision-making processes about political and social reforms, as well as on sustainable development.

In this context, is the importance of creating platforms/software dedicated to the collection, systematization and dissemination of information in several municipalities of Brazil. To gather all these qualified information and effect the creation of an Observatory, the Sustainable Cities Program offers an open data software with free access to all through a website, so as to subsidize the technical and political action of those that are involved.

The Sustainable Cities Program already born with an enormous social, political and reputational capital, accumulated by the RNSP. This capital is constituted of a large network of social, business and academic organizations, on the constitution of the Brazilian Social Network for Fair and Sustainable Cities, a great relationship with all political parties and a close relationship with the media and journalists. To complement this social and political capital, the PCS has developed a great capital and technical knowledge about sustainability in general, as the Best Practice Database, the News Portal, Content

Library and Indicators, making the PCS reference to the media, society and Governments time to formulate and implement public policies.

In this context, lies the importance of creating a platform/software dedicated to the collection, systematization and dissemination of information in several municipalities of Brazil. To gather all these qualified information and effect the creation of an Observatory, the Sustainable Cities Program (one of the Our São Paulo Network initiatives) offers open software with free access to all through a website, so as to subsidize the technical action and policy of those involved.

Democracy proposes values such as equality, human dignity, participation and representativeness. Brazil is completing a cycle of re-democratization but still has a lot to advance in social participation - which has been rediscovered and incorporated both by citizens and by public agents. "The city is the man's most consistent and on the whole, his most successful attempt to remake the world he lives in more after his heart's desire. But, if the city is the world which man created, it is the world in which he is henceforth condemned to live. Thus, indirectly, and without any clear sense of the nature of his task, in making the city man has remade himself." (Park, 1972, p. 3).

The objective of the PCS is to contribute to the municipal public management become really successful and can effectively improve the quality of life of the population, as well as modernize the administration with the adoption of planning methods that are able to generate good results in the short, medium and long term. To this end, it is essential that the Brazilian cities use satisfactorily the data platform (software) designed for the insertion of the indicators (Iota). The ultimate goal is to get the information, updated and accurate, are powerful management tools.

The civil society of dozens of Brazilian and Latin American cities have been undertaking great efforts and investment to provide the municipalities of modern and efficient tools of planning, management and execution of public policies more transparent, democratic and participatory. The Sustainable Cities Program is the synthesis of this effort and this accumulated knowledge. The ideal is that all these tools are appropriate by the Government, starting with the importance of indicators and Goals Plan meeting on Municipal Observatories able to communicate to the whole society the set of information that portrays us, reveals us, enables us and raises awareness about reality, advances, problems and challenges.

It's in the cities that life takes place and is by the municipality that citizens have to begin to process the necessary changes so that all can fully enjoy a good quality of life, reserving the same perspective for future generations. People must believe that it is possible to make different, change the direction of the prevailing economic model, implement the political and social model provided for in the Federal Constitution to pursue and consolidate the path of sustainable development. To sum up, with the ethics of co-responsibility is possible to build intelligent, participatory, sustainable and modern governance, significantly raising the quality of public management and, consequently, of the municipality and the living conditions of the population.

REFERENCES

India-Central Goverment. (2008). e-Governance: Conceptual Framework. *Institute for Social and Economic Change* - *Dr Vkrv Rao Indian Social Science Digital Library*, Chapter 2, 7-13. December, 2008, from http://arc.gov.in/11threp/ARC_11thReport_Ch2.pdf.

Grafmeyer, Yves. (1994). *Sociologia Urbana*. Portugal: Publicações Europa-América.

Lefebvre, H. (2001). *O Direito à Cidade*. São Paulo, SP: Centauro.

Park, Robert. (1972). *On social control and collective behavior*. Chicago: Chicago University Press.

PNUD. (2013). Série "Atlas Brasil 2013 – Desenvolvimento Humano em debate": Ladislau Dowbor. *Programa das Nações Unidas para o Desenvolvimento.* Notícias. October 10, 2013, from http://www.pnud.org.br/Noticia.aspx?id=3771.