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Digital solutions for urban governance

Tags: Economic Growth, Programme Design, Digital, Urban, Infrastructure

Digital solutions can improve city government-citizen engagement, promote improved prioritisation of services, support data-driven decision making, enable greater revenue generation, improve viability and delivery of investments, and support asset management.

However, for such opportunities to enable inclusive growth and poverty reduction, governments and donors need to: Support inclusive design of citizen services and communications; Improve their own management of data; Develop data analytics skills; improve data-led policy making capacity and be more committed to investing in data collection to support investments.

This paper therefore sets out the key challenges that digital solutions could address, provides a skeleton theory of change for how digital solutions can address the challenges of urban governance, and then explores the three key opportunities that developing country governments and donors must consider if they wish to make their urban areas centres of inclusive and sustained economic growth. **A wide range of papers on how digital solutions catalyse inclusive urban growth can be found on the [ICED website](#).**

Many urban governments in the global south are struggling to keep pace with change. Most city administrations do not have economic and spatial development plans, or the ability to manage these resulting in sprawl. Consequently, some of Africa's largest cities are half the density needed to effectively sustain public services, with cities setting aside only 1/3 of the land needed for future services due to poor planning¹. If African cities are to address their infrastructure deficits they need to invest 5-7% of GDP, or approx. \$30 billion per annum. However, revenue generation in many cities is so low (only \$1 per person in intermediary cities, and \$40 per person in capital cities) that governments are both unable to pay for services, and unable to gain the credit ratings needed to leverage capital to invest in hard infrastructure.

E-payment services, data-led planning tools and e-governance services all offer opportunities for cities to raise the revenues needed invest in infrastructure, and to better plan and deliver the accountable, inclusive and accessible services citizens need.

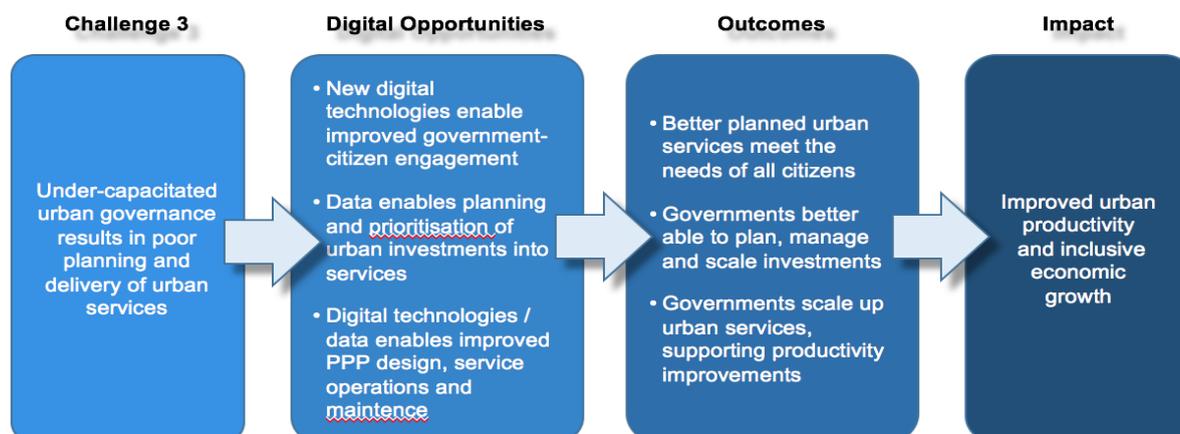


Figure 1: Theory of change - Digital opportunities to improve urban governance and inclusive growth

¹ Area Based Regeneration Schemes in India are all designed to promote mixed use high density concepts with greater walkability and improved services and supported by part grant part development led funding based on land value capture principles.

Opportunity 1: Enabling government-citizen engagement

An urban area's biggest asset is its citizens. But for many cities in the developing world, limited budgets and capacity often mean public servants focus on simply maintaining the limited services they are able to deliver - rather than focusing on planning and prioritising service improvements and responding to citizens needs. This can constrain and endanger future growth for two reasons. Firstly, when citizens feel they are not being served, they are reluctant to pay the very taxes needed by the city to improve services. Secondly, as a huge volume of digitally connected urban youth reach voting age in developing countries, poor support and engagement between local government can result in feelings of disenfranchised and discontentment with governance. A situation which can cause localised conflicts, in already fragile contexts.

Digital solutions offer huge opportunities to improve government-citizen engagement, with significant benefits. By listening to their citizens, cities can prioritise services that are important to users and can ensure the needs of the poor, and excluded groups such as the disabled are taken into account. Engaged citizens who get the services they need are in turn more likely to pay tax, which cities can re-invest in growth and services. Automated building plan approval systems for instance enable land or building owners to gain automated approval for works, safe in the knowledge that their application will be assessed in a timely and transparent manner, enabling them to safely plan for building investments. Finally, transparent and accountable city governments are better able to attract inward investment.

To ensure that digital citizen engagement initiatives have the best inclusive growth and poverty reduction outcomes possible governments, with the help of donors, must ensure that services are designed to engage and meet the needs of all businesses and citizens. Governments can consider adopting accessibility standards such as the 'Smart City for All' standards on disability access. Human-centred design, local language and user-experience experts with an understanding of the local context should provide support to service design. Most importantly governments should ensure that tools provide meaningful engagement and genuine empowerment of citizens and are not seen as 'tokenistic'.

Providing information for citizens

Tanzanian local authorities are working hard to improve their engagement with citizens. They are investing in local authority websites to provide information service access. They are innovating new portals to enable online business licencing. Trailblazers such as Kinondoni Municipal Council in Dar es Salaam has an active Facebook presence, an online form for complaints and uses SMS to respond to online queries. Its commitment to e-citizen services is matched by its resourcing commitments, with 20 people dedicated to supporting e-governance services, and a dedicated social media officer.

Digitally-enabled One Stop Shops

Many countries have now developed semi-automated service centres, either via online portals or combining physical services centres and online services. India's municipal e-governance systems have long included semi-automated citizen service software. Meanwhile 300 townships in Myanmar now have a One Stop Shop service centre where digital services accessed via local helpdesks gives better service accessibility.

Promoting budget accountability

Bengaluru led the way in promoting transparency with its pioneering open data campaign, creating city service level benchmarks, which were then used by civil society organisation Akshara to create 'WardWorks' enabling even the poorest of citizens to view ward accounts, monitor works in their community and engage in decision making.

LA's disabled citizens can now 'ask Alexa'

In January 2017 Los Angeles's Information Technology Agency enabled an Amazon 'skill'. Now Angeleno owners of Amazon's Echo or Dot can 'ask Alexa' about upcoming city council meetings,

events at nearby libraries, receive city news flashes, and will soon be able to request emergency services and report infrastructure faults. Whilst such services may seem futuristic, it is likely that smart phones will increasingly provide such voice services. If emerging economy governments design online service information with this in mind, they could leapfrog to new models of hyper-accessible citizen services which will particularly benefit those with disabilities.

Promoting participatory planning

Many cities around the world now invite citizens to participate in planning their city. This can range from inviting ideas for new solutions, to prioritising solutions, or inviting feedback on new initiatives with suggestions integrated into proposals. In Bogota, the platform 'My Ideal City' was setup to enable the developer of a large city centre regeneration project to ask citizens questions and receive suggestions via a Facebook page. Ideas and comments received were then integrated into proposals.

Monitoring and improving service delivery

A wide range of apps have been developed that enable citizens to report problems with urban environments and services. In Jakarta the Qlue app enables user to report flooding, crime, fire or waste disposal issues. City officials respond through the CROP Jakarta smartphone application, enhancing service delivery and citizen participation. In India a range of safety apps including Safetipin, Raksha, Himmat, Smart 24x7 and bSafe are aimed at improving the safety of women and the elderly in urban environments. Apps include GIS location and SMS alerts for police or relatives, and some such as the Delhi Himmat app can transmit audio-video on incidents to police control rooms. Data from the apps is also used by some police forces to inform city planning and service provision.

Opportunity 2: Supporting data-based decision making

Data is a critical enabler of inclusive service design, and government decision making. Whilst the academic community is correct in noting that there is less data in developing country contexts, there has been a significant increase in data availability in the last 5 years. In Dar es Salaam, drones are being used to undertake digital mapping of slums and communities are using Open Street Map to map street, drainage and inundation patterns in order to develop resilience strategies. Meanwhile in Madhya Pradesh, India, a city-wide e-governance system which systematically pools data from all government sources is enabling bureaucrats to use inter-agency data to improve service delivery. In addition, by linking payment services across all departments the software has enabled a significant reduction in tax avoidance, and improved revenue raising. These examples highlight the importance of not only making data available, but of creating systems that can uniformly draw on and benefit from the vast data assets available.

Open source urban mapping and data gathering tools is mirrored across other urban communities around the world. Open data portals for nations and cities are increasingly common, and many governments are investing in data collection and digitization of existing data. Civil society organisations such as Twaweza in Tanzania are increasingly of the opinion that issues relating to data are no longer focused on data supply, but on demand for data. A study of Tanzanian government officials' use of the national open data portal found a lack of awareness of its potential, and low capacity for using the analytical tools needed to interpret data. Support is therefore needed to upskill urban management professionals in the collection, management and interpretation of data to support inclusive service design.

There are significant complexities in getting the right regulatory frameworks and approach for managing data. Whilst open data can create huge value, many nations are concerned about data protection and national security – with concerns only heightened by recent cyber attacks. But data sharing between the public and private sphere, and between layers of government, will soon be critical if cities are to benefit from the amazing advances in big data analytics. Citymapper, a London-based tech startup, is running adaptive bus routes in London powered by needs based analytics, whilst Google's Sidewalk Labs is investing in Doppelganger, a big data tool capable of modelling complex demographic needs of theoretical urban populations – meaning the big data urban revolution is near.

Governments and donors can promote the use of data to support decision making by: working to improve the management and quality of existing government data sources; supporting centralised, or city-level data initiatives to collate and manage datasets; improve the capacity of government staff to collect and analyse data; and improve the capacity of policy makers to use city data to support decision making.

Opportunity 3: Managing revenues and investments

Better data is providing a transformative breakthrough in revenue generation, and understanding and managing the risk inherent in budgets and investments. Given perceived risk and asymmetric information are significant drivers of cost premiums for finance in the developing world, data poses a significant positive opportunity to unlock barriers to investment. Tech companies such as African e-Commerce company Jumia has used its database to effectively raise capital, and similar examples exist with smart ticketing. Data and digital solutions are able to improve procurement, enable PPP investments, and improve the management of city assets.

There is huge potential for cities to use data to more effectively design and manage PPPs. With African cities requiring approximately \$30 billion per annum to invest in infrastructure, much of this finance will need to come from private investment, in the form of public-private partnerships. However, many governments are cautious about such partnerships, having been party to unsuccessful PPP ventures or because information asymmetries mean they are poorly equipped to negotiate or enforce contracts. Improved use of data and data-led monitoring systems can correct these asymmetries, and if facilitated by skilled professional empowered to enforce and manage contracts could significantly increase the viability of a huge range of PPP models.

Digital solutions can also enable improved asset management and operation and maintenance planning. In Tanzania a simple combination of QR code stickers, and simple Excel tracking tools are enabling improvements in asset inspection and management, without the job losses that might be associated with more complex expensive systems. More automated systems can also support improved service delivery, for instance predictive ordering of vehicle parts can ensure that bus parts are in stock, and services are not affected by slow import processes.

Governments and donors can invest effectively in the collection and use of data to design and manage city revenues, investments and assets. They can leverage digitally enabled payments mechanisms to increase city revenues, and use ICT systems and data analytics to manage city budgets. Donors can support more effective investment in data collection to support donor investments and PPPs, in order to reduce risk, and can ensure more effective donor collaboration around investments to reduce the costs of such data. Automated data collection and analysis should be built into delivery plans for investments as standard so that governments are able to monitor performance of service providers or assets. Finally governments could benefit from adopting challenge-based procurements which enable co-innovation of service solutions more likely to meet city needs.

Using data to enable effective PPPs

The Tanzanian bus licensing authority (SUMATRA) is rolling out a GPS tracking platform and will require private sector licensees to fit GPS trackers to all buses. This will enable them to monitor road safety and service performance, enabling them to revoke licenses, invoke penalties or report legal infringements to the police authorities such that the privately delivered service is managed effectively.

Digital solutions drive up city revenues

Urban governments are using data, digital tools and e-services to raise and manage revenues. Cities across Asia and Africa have pioneered electronic taxation platforms, innovated methods of tax collection, and increased their revenue base using digital tools. In Kaduna, Nigeria local governments have trialled Point of Sale technology for local tax collection to reduce revenue leakage. The e-CITIE electronic taxation platform in Kampala, Uganda increased revenues by 20% in just two years. Transport smart cards used from Bangkok to Lagos ensure reliable revenue collection, and Nairobi

uses mobile payments for parking. E-governance budgeting tools are then also being deployed widely, improving city budget management, and enabling strategic budget planning.

Innovating through procurement

Innovations in procurement can enable increased participation of local SMEs in city service value chains, and can enable better design of innovative urban services. The Chilean procurement portal Chil-e-Compra enables businesses to bid for public sector tenders, with a rise in the share of contracts awarded to small and medium-size enterprises from 24% to 44% within 10 years. Exeter City through its innovation arm 'Exeter city future', uses challenge-based procurement and pre-commercial partnership arrangements to enable the city and sectoral innovators to co-develop city solutions. The CivTech incubator based in one of Europe's fastest growing Tech hubs, CodeBase, provides a space where city administrators can experience the start-up environment, and facilitates challenge based procurements which enable selection and contracting within 7 weeks.

For more information on how digital solutions can catalyse inclusive urban growth, or support in programme design please consult the ICED website or contact the ICED Facility at connect@icedfacility.org.

Digital Governance and Citizenship Solutions in action

