

Smart cities in Africa? It's not just about ICT

By [Eckart Zollner](#)

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As mass urbanisation continues across Africa, putting in place the fundamental infrastructure needed to build smart cities has never been more important. Smart cities are emerging in Zambia, Ghana, Mauritius and Kenya. For all of them, the first hurdle is installing the ICT infrastructure, but the capabilities required to kick-start smart city services and efficiencies reach beyond ICT.



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Smart cities don't just deliver cost savings and efficiencies; creating a sustainable enabling environment can impact economic potential and growth. In Africa, a dearth of infrastructure provides a greenfield opportunity to get it right first time. However, strategic planning will be key to success.

ICT may be the core upon which smart cities are built, but getting buy-in from stakeholders to deliver smart services means building relationships - putting in place processes and integrating systems and implementing the right controls, security and management systems.

This requires an ICT partner with more than just technology skills. A broad knowledge and experience of industry sectors (from utilities to public sector service delivery, manufacturing value chains, industrial operations and corporate processes) will be essential to coordinate, synchronise and integrate systems and technologies as they converge within a single intelligent city hub.

UN studies and other research offer alarming predictions: by 2035, the majority of Africa's people (over 50%) will be urbanised, more than doubling current urban populations in some countries. By 2030, six of the world's 41 megacities will be in Africa. By 2050, Africa's slum population will have tripled. Governments will be highly pressured to keep pace with urban development.

Who drives smart city development?

At present, smart city and smart community developments are being driven by developers and through public-private partnerships (PPPs).

Governments recognise the need for smart city development and are building it into development policies. However, they face a number of challenges:

- They must upgrade existing legacy systems to function in a smart city environment,
- Smart city infrastructure is costly to implement,
- Service delivery and revenue collection systems must be developed, and
- Services need to be rolled out tactically and in a phased manner to secure a return on investment and ongoing revenues to ensure
- the expansion and sustainability of services.

In terms of minimising cost, new greenfield developments remain optimal, with fibre being put into the ground alongside civil infrastructure (water, sewerage pipes, etc.). This is also optimal in terms of determining the distribution of infrastructure for mobile and Wi-Fi providers. Cost can nonetheless stymie progress, which is where PPPs are useful.

Developers are more commercially minded than governments and are able to target high-income customers, combining infrastructure development with security to secure revenues. This often results in exclusive gated communities. However, in PPP arrangements, developers are extending these benefits in a phased manner with support from government to other segments of the community.



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Key elements of smart city success?

The underlying ICT infrastructure is a key element of smart city success. Open access networks will be essential in the long term. Rather than tight network control by individual infrastructure owners, or the complexity that results when many providers attempt to manage their own physical networks and service delivery, an open access network is open to any ISP or service provider. Centrally managed, open access networks facilitate ease of connection to the network, improved controls and high-quality services. And a big plus: open access networks maximise use of the network, maximising revenues and minimising expenditure.

Fully managed data centres will be important. From the infrastructure layer upward, smart city services are usually provided independently. These services include utilities, security, internet of things or machine-to-machine services, and analytics. In bigger and more developed countries, multiple data centres will facilitate interconnects between providers at local and international levels. However, at every level, because everything is powered by technology and connectivity, data centre control must be provided. How these technologies are deployed and aligned to customer needs will determine their success, however.

For example, utilities are already under pressure to deliver. However, with no smart meters rolled out, they are finding it hard to manage demand, integrate and manage clean energy sources (e.g. PV and wind energy), and deliver services. As they move toward upgrading their systems, utilities need to identify high usage clients and align their services to meet these customers' needs first. This will assist them to deliver lean, optimal and efficient services, which can be integrated with other services as intelligent smart city capabilities expand.

The ICT provider will play a broader role, implementing ICT infrastructure but also coordinating between service providers. By ensuring services run on an integrated platform and providing suitable analytics or user apps, or access to these apps on hosted platforms, smart services become available. For example, by integrating electricity, water, sewage and waste collection on a single hosted platform, city dwellers can gain a smart view of service use and rates and taxes. Similarly, with traffic and security data (and possibly IoT and big data) on a single platform, users can identify congestion and optimise their travel schedules.



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Implement, manage, orchestrate

As infrastructure is rolled out, citizens connect and services go live, cities will become smarter. To put the fundamentals in place, smart governments and developers will choose partners that have strong technical and technology expertise but also broader integration, orchestration, strategic and management capabilities.

Look for partners that:

- Have broad industry experience, with an understanding the operations and priorities of different sectors and stakeholders,
- Can create strong collaborative relationships across and between sectors,
- Can do strategic planning and service rollouts based on customer needs and stakeholder readiness,
- Can offer data centre, interconnect and international connectivity,
- Can facilitate open access models, providing network control, management and maintenance,
- Offer smart city stakeholders integrated, shared and hosted platforms to flight their services,
- Have the data and analytics capabilities to enable multi-party services, and
- Can facilitate service provision and revenue collection.

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