Demand forecasts for telecom infrastructure equipment and services in Sub-Saharan Africa

2019 edition


Image courtesy of CCE

After a quieter 2019, TowerXchange is expecting some significant new tower build, continued decommissioning, new innovations, and a resumption of M&A activity, with SBA Communications acquisition of Atlas Tower a sign of continued strength. Ahead of the 7th Annual TowerXchange Meetup Africa coming up on 8-9 October 2019 in Johannesburg, TowerXchange take a deep dive into the sub-Saharan African region, exploring the appetite for passive infrastructure equipment and services in 23 countries. Our guide updates months of interviews and market studies to provide you with a comprehensive overview of where the key opportunities lie for the supplier ecosystem.

Read this article to learn:

- Where the volume of new build will be highest across Africa
- Countries, MNOs and towercos requiring significant investment in cell site energy
- Country-by-country requirements for site upgrade and turnkey infrastructure services
- Expected investment in RMS, access control and site management systems
- Where the most imminent opportunities exist for small cells and DAS deployment
- Who are the leading MNOs, towercos and ESCOs in each country

Keywords: Access control, Africa, Africa & ME Research, African Towers, Africell, Afrimax, Airtel, Aktivco, Al Karama Towers, American Tower, Angola, ANTOSC, Atlas Tower, Azam Telecom, Azur, Batteries, Blue Sky Towers, Burkina Faso, Cameroon, Camtel, Capacity Enhancement, Capex, Chad, Coast to Coast, Comco, Congo B, Construction, Cote d'Ivoire, DAS, Decommissioning, DRC, Eagle Towers, Eaton Towers, Econet, Eighty Four Dynamics, Energy, Energy Efficiency, Energy Storage, Energy Vision, ESCOs, Etisalat, Expresso, Gabon, Gabon Telecom, Ghana, Glo, Globacom, GreenWish Partners, Gyro Towers, Helios Towers, Hybrid Power, IHS, IPT PowerTech, Kenya, LPP, Madagascar, Malawi, Managed Services, mCel, Millicom, Monitoring & Management, Moov, Movitel, Mozambique, MTC, MTN, Namibia, NetOne, Network Rollout, Nexttel, Niger, Nigeria, O&M, Off-Grid, On-grid, Orange, Pan African Towerco, Paratus, Passive Equipment, Powercom, Pro High Site Communications, Rectifiers, Renewables, RMS, Rwanda, Safaricom, SahelCom, Senegal, Site management system, Sky Coverage, Small Cells, Smart, Smile, Solar, Sonatel, Sotel, South Africa, Supercell, Tanzania, Tatem Telecom, Telecel, Telecom Namibia, Telkom, Telkom Kenya, Telma, Telmob, Tigo, TOM, TowerCo of Madagascar, TTCL, Uganda, Unitel, Viettel, Viva, Vodacom, Zain, Zambia, Zamtel, Zantel, Zimbabwe

Demand forecasts: telecom infrastructure in SSA

Vendor opportunity matrix	Energy	RMS, ILM and access control	Tower manufacture	Turnkey infrastructure	Small cells, microcells, DAS and IBS*	Advisors	Towercos	MNOs	ESCOs
Angola	**Medium**	**Medium**	**High**	**Low**	**Low**	**Medium**	Antosc	Unitel Movicel Angola Telecom	None
	Angola needs to double its site count in order to meet coverage requirements, with Unitel requiring an additional 1,000 towers and Movitel around 2,000. Angola Telecom is investing US$12.6mn in 4G in five provinces prior to its privatisation, adding up to 100 sites. A new MNO license was expected to be awarded in 2019 but the process has been restarted, delaying further investment in a fourth network. The potential for new site build is significant (if not somewhat hampered by the poor, but improving, economic conditions in the country). Angola's first towerco Antosc recently started building sites with plans to build 400 sites in the next three years. Around 85% of sites are operating with diesel generators and Unitel are currently assessing solar hybrid solutions. It was reported that Movicel had started to explore the potential monetisation of some of their sites, thus creating opportunities for towercos and transaction advisors, but the process does not appear to have moved forward. Africell have a public interest in the fourth licence, with a US$100mn+ line of credit ready to go.								
Botswana	**Low**	**Low**	**Medium**	**Medium**	**High**	**Low**	Atlas Tower Pula Towers	BTCL Mascom (MTN) Orange	None
	With around 850 towers in the country, the regulator is unhappy with coverage. With a large rural area, the Universal Service Fund is making available funding to improve coverage. In Gabarone, high levels of urban construction and development have led to interference with networks, and as such in building solutions are becoming increasingly important. South Africa's fastest growing towerco, Atlas Tower, has recently entered the market and is building up a portfolio of assets, joining local towerco Pula Towers. Botswana is a small country (566,730 sq km) with a population a little over two million, but the country does not lack liquidity for good investments. While 4G rollouts commenced as long ago as 2015, there is still need for densification sites. Econet's efforts to acquire a controlling stake in market leaders Mascom from MTN are being met by resistance from BPOPF.								

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Burkina Faso	High	Medium	Medium	Medium	Low	Medium	Eaton Towers (pending acquisition by American Tower, expected to close Q4 2019)	Orange Onatel Telecel	Camusat/ Aktivco
	Over 60% of the population is in rural areas and with ARPU being low, Burkina Faso needs low-cost solutions along with satellite backhaul in order to improve coverage for much of the population. Eaton entered the market following the acquisition of Airtel's sites (prior to Airtel selling their opco to Orange), and it has since been announced Eaton Towers will be acquired by American Tower in late 2019. Over 50% of the country's towers are off-grid and Eaton have recently invested significantly in renewable and hybrid energy options, including the repair/replacement of 60 solar sites they have inherited. Camusat's Aktivco is understood to have signed an ESCO contract with Orange, estimated to cover ~300 sites. New build in the market is expected to pick up with about 100-120 new towers expected to be added per annum. Huawei is installing fibre backbone in the country and extension of this will present opportunities for managed service providers. 4G is only beginning to be introduced.								
Cameroon	High	Low	Low	Medium	Low	Medium	IHS Towers	MTN Orange Nexttel (Viettel) Camtel	None
	IHS own or manage the majority of Cameroon's towers having acquired MTN's portfolio and entered into a "manage with license to lease" arrangement with Orange. The entrance of Viettel-owned Nexttel in early 2013 increased competition and prompted MTN and Orange to invest in their networks. Viettel has since been exploring a sale of its towers in Africa. In 2018 both MTN and Orange agreed to expand their networks as a condition of their concession renewals, requiring both to bring 4G to all key urban and economic activity areas. IHS has also secured contracts with CamTel so expect further co-locations. Around 25% of sites are off-grid with about a third of these relying on solar. Declining grid availability means back-up power is a high priority for on-grid sites. IHS have hundreds of solar-hybrid sites and are continuing to deploy more across their portfolio of 2,220 towers – a count which has reduced by over 100 in the last year, reflecting decommissioning that we expect to continue, turning Cameroon's net tower growth negative into the medium term.								

Vendor opportunity matrix	Energy	RMS, ILM and access control	Tower manufacture	Turnkey infrastructure	Small cells, microcells, DAS and IBS*	Advisors	Towercos	MNOs	ESCOs
Chad	High	Medium	Unknown	Unknown	Low	Medium	None	Millicom Airtel Sotel	Aktivco/ Camusat
	There are an estimated 2,000 towers in Chad, a country where electrification sits at just 4%. To address power issues, Millicom has signed an agreement with Camusat's Aktivco in the country. Millicom has since agreed to sell their Chad opco to Maroc Telecom. Airtel had previously agreed the sale of their towers in Chad to Helios prior to the transaction being cancelled because of an unfavorable regulatory environment. Millicom / Maroc and Airtel share a total of around 6mn subscribers, with state-owned Sotel having around 1% market share. A tender for a fouth operator was mooted in 2018 but appears to have come to nothing. Airtel are rolling out 4G in the capital N'Djamena as well as continuing expansion into other cities.								
Congo B	Medium	Low	Low	Medium	Medium	Medium	Helios Towers	Airtel MTN Bintel	None
	A small market with just 800 towers, of which Helios own 384. MTN launched 4G in 2016, with full 4G commercial deployment licenses issued to all three MNOs by 2018. Orange had attempted to acquire Airtel's opco but the deal lapsed. Bintel have a very low market share and may have their license stripped. Helios have identified 1,200 sites in Tanzania, Congo Brazzaville and the DRC which are candidates for hybrid technologies, so expect a portion of Helios' sites to be upgraded. Because of difficulties in acquiring permits, Helios have begun installing some IBS in Brazzaville.								
Côte d'Ivoire	High	High	Medium	High	Low	High	IHS Towers	MTN Orange Moov LPP	Aktivco
	Observers will be keenly interested in how a towerco and ESCO can complement one another in Cote d'Ivoire. In August 2018, Orange awarded a ten year ESCO contract to Aktivco to manage ~500 sites. With 2,689 towers, IHS has been the leading towerco in the country since acquiring towers from MTN and entering into a Manage with License to Lease deal with Orange. Orange has targeted Cote d'Ivoire for substantial new build and site upgrade work, while third-ranked MNO Moov is also seeking to expand their portfolio of ~800 sites. IHS built around 129 new sites in Cote d'Ivoire in 2018, There is some parallel infrastructure in the country, with hundreds of towers subject to uncertain ownership after the government revoked the license of LPP, which itself had consolidated 400-500 towers of four previous operators, each of which had suffered the same fate of having their licenses revoked. Overall estimations persist that the market needs a further 1,800 towers to be added between all operators within the next two to three years, although TowerXchange expects net new towers to be substantially lower than this in reality. With regards to power, Orange stated that diesel accounted for 36% and grid 64% of total energy costs in the country. IHS has over 100 solar hybrid sites and continues to rollout more across its portfolio.								

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DRC	High	High	High	High	Low	Low	Helios Towers	Africell Airtel Orange Supercell Tatem Telecom Vodacom	GreenWish Partners
	DRC reverted to robust growth for MNOs and towercos towards the end of 2018, with Helios reporting 200 new co- locations in Q418 alone, and Orange citing the DRC as a primary contributor to growth. With 4,293 towers (of which Helios own 1,773 following the acquisition of Millicom - now owned by Orange - and Airtel sites), the country needs a doubling of its existing tower stock. DRC has a population of 85mn, but just 40% SIM penetration and 50% geographical coverage. That said, Helios has had some success decommissioning parallel infrastructure in the country. Outside of the three main cities almost all sites are off-grid with power being 2.5x more expensive in rural areas. Helios have put a major focus on reducing diesel consumption, and has deployed 430 solar sites in the country. Orange has signed an ESCO contract with GreenWish Partners to take over management of power on 250 sites. Vodacom are also exploring an ESCO RFP for 200-300 sites. A new telecommunications act has been passed with promotes and infrastructure sharing, and MNOs in the market have secured 4G licenses, signifying co-location potential. Vodacom have deployed 800 low cost rural sites as well as the 800 macros they retain and the 800 towers they lease from Helios. Whilst Africa Mobile Networks is deploying 750 solar powered towers in rural areas. Poor road infrastructure makes site access challenging, underscoring the importance of robust RMS and site management systems to monitor and control sites. Investment going into fibre in the country provides further opportunities for managed service providers traversing multiple forms of telecoms infrastructure. Helios built two new backbones, one for Vodacom and one for Orange, of a combined 1800km in length and are in talks for a third 500km backbone for another MNO.								

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Ethiopia	High	High	High	High	Unknown	High	None	Ethio Telecom	None
	Ethiopia currently has ~8,000 towers, 100% owned by Ethio Telecom, the monopoly national telco. Ethio serves 41mn subscribers out of a population of 108mn – a surge in investment from 2013 onwards saw geographic coverage expand from below 30% to around 85% today for 2G and 66% for 3G. Ethio Telecom launched 4G in Addis Ababa in 2015. There is a significant requirement for new towers, strengthening, new energy systems, and other operational upgrades. Financial constraints have prevented further investment, but the privatisation of Ethio Telecom is expected later this year, as well as the issuance of two new mobile operator licences, which will enable investment in new sites. The government will also force the carve out of Ethio's existing towers, some of which are believed to be robust enough to enable co-location, although many newer towers built on a turnkey basis may need to be decommissioned and replaced with more robust structures. There are currently no towercos active in the country, but once international mobile operators enter, rapid development is expected, akin to the liberalisation of telecoms in Myanmar, where towercos have build over 10,000 sites in the last five years. MTN, Vodacom/Safaricom, Orange and Etisalat are all known to be interested in entering the market. They are planning on adding 500-1000 new towers per operator per year. There is a live ESCO RFP for 1,000+ Ethio Telecom sites.								
Gabon	High	High	Medium	Medium	Medium	Low	None	Gabon Telecom (Maroc Telecom) Airtel	Energy Vision
	A small market with 1,000 towers, most of which are in the main cities. A pioneer in digital TV, fibre and cellular coverage, Gabon is one of SSA's most progressive markets. 50% of sites in the country are on-grid, 30% off-grid and 20% are on bad grid where more than six hours of power is not usable. Energy Vision has signed an ESCO contract with Airtel. The project encompasses a full solar hybrid system with CDC batteries and has now been extended to cover a total of 280 sites of which 40% are off-grid, 10% are on unreliable grid and 50% are on-grid. Major investment is going into fibre in the country, creating opportunities for managed service providers. In September 2017, the government launched a universal service fund to bring coverage to 3,000 rural locations.								

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<tr><th>Vendor opportunity matrix</th><th>Energy</th><th>RMS, ILM and access control</th><th>Tower manufacture</th><th>Turnkey infrastructure</th><th>Small cells, microcells, DAS and IBS*</th><th>Advisors</th><th>Towercos</th><th>MNOs</th><th>ESCOs</th></tr>
<tr><td>Ghana</td><td>Medium</td><td>Medium</td><td>High</td><td>High</td><td>Medium</td><td>Medium</td><td rowspan="2">American Tower
Eaton Towers*
Helios Towers
African Towers
Pan African Towers
*pending acquisition by American Tower, expected to close Q4 2019</td><td rowspan="2">MTN
AirtelTigo
Vodacom
Glo
Surfling
Blu
Broadband Home</td><td rowspan="2">None</td></tr>
<tr><td></td><td colspan="6">77% of the country's 6,600 sites are owned by towercos. Pending its acquisition of Eaton Tower (announced not closed), American Tower would own 57% of Ghana's towers. Whilst there has been strict regulation governing new build, it is starting to pick up in the country with ~200 new towers being added per year, with growth of over 300 a year predicted as site typologies become smaller and networks densify. Requirements for densification as 4G rollouts continue may neccessitate regulatory changes thus opening up even more new build activity and shared DAS will grow. Ghanaian towerco African Towers currently operates around 50 DAS sites in the country and American Tower a further 18. Grid connection is good by SSA standards, with one towerco reporting that just 3-4% of sites are off-grid and another reporting reductions in diesel usage due to improved availability (which is trending towards 20 hours a day). Eaton Towers recently reported achieving 100% uptime across their network. The introduction of new tariffs has caused electricity costs to skyrocket, meaning it can actually be cheaper to run on generators in some instances. The business case for solar and hybrid solutions is strengthening, and deep cycle batteries are being widely deployed. Newly merged AirtelTigo has announced plans to consolidate its networks whilst expanding rural coverage, creating opportunities for managed service companies. Helios won an open tender to become the towerco of choice following the Tigo/Airtel merger, which will be the country's number two operator.</td></tr>
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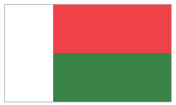
Vendor opportunity matrix	Energy	RMS, ILM and access control	Tower manufacture	Turnkey infrastructure	Small cells, microcells, DAS and IBS*	Advisors	Towercos	MNOs	ESCOs
Kenya	High	High	High	High	High	High	Atlas Towers American Tower Eaton Towers* *pending acquisition by American Tower, expected to close Q4 2019	Safaricom Airtel-Telkom** ** pending regulatory approval of the Airtel-Telkom merger	None
	One of Africa's strongest economies, the Kenyan mobile sector is continuing to show strong growth in subscriber numbers and data usage. Market leader Safaricom currently has 5,256 sites and plan to add around 400-500 in 2020. Safaricom is also reportedly exploring issuing an ESCO RFP to take over power management on hundreds of sites with particularly challenging energy needs. In February 2019 Airtel and Telkom announced a merger and in May 2019, American Tower announced it would be acquiring Eaton Towers, consolidating the 1,320 towers into American Tower's own portfolio of 715 towers. These two mergers will slow new tower construction, as Telkom cancelled some 200 sites following its merger, and the combination of ATC towers and Eaton towers may enable swaps to replace some new sites and, with hundreds of overlapping sites in the two towerco portfolios, may lead to some decommissioning. However, Airtel will continue with its pre-merger planned expansion of around 250 new sites through 2019, and American Tower's new site build will approach – but stay below – that of Safaricom in 2020. The towers acquired from Telkom have been audited and significant upgrade work will be required. Likewise, some upgrades on Eaton's towers may follow the ATC acquisition. Around 60% of Kenya's sites are on good grid connections, 25% on bad grid, and 15% off grid. Safaricom has committed to becoming a net zero carbon emitting company by 2030, and are phasing out diesel generators wherever possible and have started to prioritise the use of solar at smaller capacity sites, with 90 solar sites planned last year. Currently, the majority of Safaricom's sites use diesel generators plus battery hybrids, with some solar in the mix. A little under 150 sites still run on dual diesel generators 24/7. Whilst macrosites remain the main site topology, around 500 buildings have been identified as being suitable for DAS / IBS with a hundred or so covered already; Safaricom is currently operating shared DAS networks and deploying small cells. Eaton has deployed "a low double digit count" of IBS in Kenya. Safaricom has announced a plan to double its 4G network coverage to 5,000 base stations by March 2020.								
Madagascar	High	Medium	Medium	High	Low	Medium	TowerCo of Madagascar	Telma Airtel Orange Blueline	RFP in 2018 – no news of a confirmed contract
	TowerCo of Madagascar (ToM) own 55% of the country's stock of 2,310 towers with the towerco adding roughly 100 sites per year, a pace of build we expect to be continued or exceeded. ToM's parent MNO TELMA are the market leaders and are currently deploying 4G with Orange and Airtel also following suit. Power is a major challenge in Madagascar, with ToM putting a big focus on renewable energy at present, with solar-only sites with battery backup on 60% of their sites. Orange issued an RFP for an ESCO in 2018, but has not yet issued a contract. Airtel report 50% of their sites to be off-grid, with battery-DG hybrids in place; the MNO had looked at the ESCO model but found it couldn't compete and is currently reviewing its managed services contract to bring down costs.								

Vendor opportunity matrix	Energy	RMS, ILM and access control	Tower manufacture	Turnkey infrastructure	Small cells, microcells, DAS and IBS*	Advisors	Towercos	MNOs	ESCOs
Mozambique	**Medium**	**Medium**	**Medium**	**Medium**	**Low**	**High**	None	TMCEL Movitel Vodacom	None
	Viettel-owned Movitel rolled out 1,500 sites in three years following their entrance in 2012, prompting Vodacom to add a further 800 sites. New site build has however dropped off significantly since then; extensive investment is however being diverted to fibre rollout. Whilst the power situation has improved in Mozambique, there is a large rural population and the majority of rural sites are dependent on diesel generators. mCel initiated a process to sell their 1,200 sites but attracted limited interest with the deal now being off. mCel's towers are understood to require a good deal of improvement capex as the towers have reportedly been poorly maintained. mCel and fixed line operator, TDM merged creating TMCEL. Annual floods cause challenges for tower owners, and the impacts of Cyclone Idai and Kenneth mean significant network recovery is required. 4G has been rolled out in the capital Maputo, but service is reportedly spotty and greater investment will be required to bring it up to standard.								
Namibia	**Medium**	**High**	**Medium**	**High**	**Medium**	**Medium**	Atlas Tower Powercom	MTC Telecom Namibia Paratus	None
	The Namibian telecom sector is in the midst of an overhaul, with a new law mandating infrastructure sharing in the country. Such a change means decommissioning services will be in greater demand than tower building (although some low capacity monopole structures in the country will need to be replaced). What's more, the changes may place the country's full complement of towers into the hands of a dedicated infrastructure provider, creating demand for investments in ERP systems and an improved NOC. Namibia's climate is ideal for solar and faltering South Africa energy supply, from where Namibia imports 25% of its energy, is increasing demand for power solutions. Atlas Tower now operates in the market. Telecom Namibia-owned Powercom owns 311 sites, and is exploring working with an ESCO to offload energy management. MTC has announced a programme to build hundreds of sites, particularly with the goal of extending its 3G network into rural areas, and the regulator is assessing how many new sites are required to achieve complete coverage, which should both boost demand for towers.								

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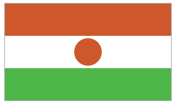
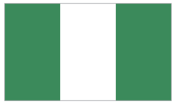
Niger	High	Medium	Medium	Medium	Low	Low	Eaton Towers* *pending acquisition by American Tower, expected to close Q4 2019	Airtel Moov Orange Sahelcom	Aktivco/ Camusat
	Similar to Burkina Faso, where Eaton Towers also has a footprint following the acquisition of Airtel's sites, Niger is characterized by a low ARPU and high percentage of the population living in rural areas, thus necessitating solutions to provide low cost coverage. Over 50% of the country's ~1,800 towers are off-grid leading Eaton to examining renewable energy options (including the repair/ replacement of 200 solar sites the company has inherited) and Orange signing a ten year ESCO contract with Camusat's Aktivco, governing ~500 sites. New build requirement in the market is thought to be relatively conservative although Airtel's turnaround in Africa means that some new build activity is now coming Eaton's way and with Airtel securing the country's first 4G license, expect technology amendments. American Tower's acquisition of Eaton's 640 towers in Niger may lead to some structural upgrades and new energy investments depending on investment priorities.								
Nigeria	High	High	High	High	High	High	IHS Towers American Tower Secured Towers Limited Communication Towers Nigeria Pan African Towers BCTek Engineering Hotspot Network	Airtel 9mobile Globacom MTN Smile Bitflux InterC Network ntel Spectranet	IPT PowerTech MP Infra Biswal Uppercrest Makasa Sun
	Nigeria needs to double its tower count, adding another 30,000 sites. IHS own 16,390 Nigerian towers, over half of the country's existing stock (having acquired MTN, Etisalat and CDMA Visafone's sites as well as HTN Towers), and American Tower own 4,877 sites following their acquisition of Airtel's portfolio. Following a deep recession, new site rollout had been scaled back but is picking up again. Middle-market Pan African Towers is adding over 60 towers a quarter, which should see it top 2,000 sites by year end. American Tower added 117 towers in the first half of 2019, a noticeable acceleration from the net +3 of 2018. IHS added a net 500+ Nigerian towers in 2018, but has also decommissioned over 1,000 Nigerian towers in the country in recent years, which therefore somewhat masks its impressive organic growth. Lagos regulator LASIMRA reckons on 2-300 new towers in Lagos State alone next year. Add the fight for 4G network and customers between MTN, Airtel, Globacom and other smaller ISPs and you have a recipe for significant new build and amendment revenues. 75% of Nigeria's sites remain off-grid with on-grid availability as low as four hours per day. IHS' big five programme, wherein five companies were chosen to replace diesel generators with solar hybrid solutions on around 10-12,000 sites, has been whittled down to three key partners. American Tower is investing capex in improving diesel generator efficiency with average lifespan across their portfolio having increased by 30% and significant investment in hybrid solutions is planned with some solar only sites also expected. The goal is to reduce diesel usage 50% over the next three years. The sale of 9mobile is ongoing, but it is not clear who will take over the mobile network.								

Vendor opportunity matrix	Energy	RMS, ILM and access control	Tower manufacture	Turnkey infrastructure	Small cells, microcells, DAS and IBS*	Advisors	Towercos	MNOs	ESCOs
Rwanda	Medium	Low	Low	Medium	High	Medium	IHS Towers	MTN Airtel KT Rwanda Networks	None
	IHS own over 855 towers, believed to represent around 80% of the total sites in Rwanda having acquired portfolios from Airtel and MTN. A small market, major focus is on consolidation but some BTS activity is coming up for the towerco. The company has invested heavily in power systems on its sites already but is looking into a solar farm to supply the grid with power. IHS has already invested in state of the art monitoring systems across its sites and so procurement in this area is not a priority. Of all the SSA regions, Rwanda is showing some of the strongest promise in small cells and DAS making it a key target for such companies looking to enter Africa. IHS have explored shared DAS.								
Senegal	Medium	High	Medium	High	Low	High	Al Karama Towers	Sonatel Tigo Expresso	None
	Market leaders Sonatel (majority owned by Orange) own approximately two thirds of the country's 3,925 sites. Newly formed towerco, Al Karama Towers (AKT), have agreed the purchase of over 600 Expresso Telecom sites, although the deal has not yet closed. Expect improvement capex to be deployed to bring acquired towers up to standard for colocation. AKT's deal with Expresso involves a build to suit programme, creating opportunities for tower manufacturers. Millicom has recently closed the sale of its opco to a consortium involving NJJ, Axian, Sofiman and Teyliom Group with rumours that a tower sale could ensue, both by Tigo and by Sonatel. There have been reports that a joint venture between South Korea's SK Telecom and Middle Eastern firm CKG Group has applied for a fourth MNO license in the country. Three new ISPs are currently rolling out their 4G networks in the country. Sontel (Orange) secured a 4G license in 2016, while a change in ownership of #2 MNO Tigo led to it being issued a new 4G license at the end of 2018. All this activity makes future build volumes unpredictable, but could hit 300 per year from 2020 onwards.								

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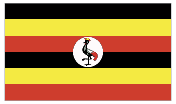
South Africa	**High**	**High**	**High**	**High**	**High**	**High**	Gyro Towers American Tower Atlas Tower Helios Towers Eagle Towers Sky Coverage Blue Sky Towers Pro High Site Communications Global Towers Comco Maropa	Vodacom MTN Cell C Telkom Rain	None
	The situation in South Africa has never been more fluid, and while uncertainty has slowed the market during 2019 we expect things to move from 2020 onwards. In 2019 Helios Towers and SBA Communications entered South Africa with the acquisition of SA Towers and Atlas Towers SA respectively, signalling confidence in the market. TowerXchange expects near a thousand sites to be added each year onwards, and due to permitting we expect a fair proportion of these to be camouflaged. Telkom's Gyro Group are now past halfway through a process of rationalising their towers, correcting lease rates with MNO tenants and landlords. From 2020 expect a divesture or a run of investment in site improvement and network expansion. Small cell shipments to South Africa have been high. Before Helios Towers partnered with local fibre operator Vulatel, American Tower acquired Frogfoot to play in the fibre space. Unlike other SSA countries, the majority of South Africa's sites are on reliable grid and so demand for energy equipment is lower, although energy efficiency and battery storage are still of high importance, with one operator known to also be looking at fuel cells. However, because of National electricity grid operator Eskom's continuing struggles to meet rising demand, resulting in load shedding, MNOs are beginning to explore power-as-a-service options, including working with ESCOs. Helios Towers and Atlas Towers also plan to offer power-as-a-service as a differentiator. Speculation about the potential future sale of MTN's South African towers has died down for the time being and the company is looking at ramping up investment in the country. Discussions of an MNO-joint venture has picked up, with speculation rife about what will happen if Cell C's balance sheet pulls it under.								

Vendor opportunity matrix	Energy	RMS, ILM and access control	Tower manufacture	Turnkey infrastructure	Small cells, microcells, DAS and IBS*	Advisors	Towercos	MNOs	ESCOs
Tanzania	Medium	Medium	Medium	High	Medium	High	Helios Towers	Vodacom Millicom Zantel Airtel Viettel TTCL Azam Telecom	None
	With 3,701 towers, Helios Towers own 45% of the country's 8,278 towers (having acquired Vodacom, Tigo and Zantel's sites), and a significant decommissioning programme has been undertaken. Airtel has for a third time listed its towers for sale, having resolved a dispute with the government. Airtel's previous agreement to sell its Tanzanian tower to American Tower is believed to have foundered due to the requirement for large companies to list locally in Tanzania. Airtel's sites are in need of modernisation, lacking sophisticated access control systems and a successful sale will precipitate upgrades. Halotel built a network of 1,500 sites since 2015, but relied on guyed-masts, such sites will require upgrading or replacement if they are to be made suitable for sharing. 4G licenses were only issued in 2017, so rollout is still ongoing, while new market entrant Azam Telecom has recently been awarded spectrum and expects to start rolling out its network. The country needs an estimated 2,000-3,000 new sites to be added in the next two to four years, although investment has slowed and focus is currently on capacity rather than coverage. Helios report that approximately 80% of their towers in the country are on-grid, with grid availability currently around 20 hours per day, and conditions are conducive to solar hybridisation. Helios set up four pilot sites for hybrid technologies at an average cost of $12,500 per site and have identified a further 1,200 sites in Tanzania, Congo Brazzaville and the DRC which are candidates for hybrid technologies. Grid connection is also a focus for Helios in Tanzania. Airtel have 50 solar sites amidst their portfolio of 1,500, most sites are reliant on generators with a few rooftops having batteries. With a growing urban base, Tanzania is a good candidate for small cells but lags behind comparable markets. DAS are starting to be deployed. Vodacom has committed to a significant 4G programme in the country, which will push up new build and amendment revenues.								

Vendor opportunity matrix	Energy	RMS, ILM and access control	Tower manufacture	Turnkey infrastructure	Small cells, microcells, DAS and IBS*	Advisors	Towercos	MNOs	ESCOs
Uganda	High	Medium	Medium	Medium	Low	Medium	American Tower Eaton Towers* *pending acquisition by American Tower, expected to close Q4 2019	MTN Airtel Africell Smile UTL	None
	There are still around an additional 3,000 towers to be added to Uganda's total of 3,816; the growth rate was 17% between 2012 and 2014 but has since slowed to 10% as MNOs opt for co-location on existing sites. In May 2019 American Tower announced a deal to acquire Eaton Towers' sites in the country, which will put almost all new build into their hands, with Eaton previously expecting to add 100 sites in the next year and American Tower 50-100. Maintenance costs in the country are high (approximately double those in Ghana). Around 27% of sites are off-grid, with about half of new build being off-grid. Grid outages are common, even in Kampala, meaning that lots of investment is going into hybrid solutions. Eaton had a pilot study underway to assess hybrid solutions under both capex and opex models, with capex looking like the most likely. Uganda was Eaton's only market without significant RMS installed, and acquisition by American Tower is likely to precipitate new investment. DAS deployment is behind other East African countries but fibre rollout is established.								
Zambia	High	Medium	High	High	Low	Low	IHS Towers	Airtel MTN Zamtel UZI Zambia (Unitel)	None
	Another market in which IHS have a dominant market share, owning 85% of the country's total stock. The towerco plans to become diesel neutral in the next few years suggesting significant investment in hybrid solutions are to be expected on its 1,709 sites. IHS currently operates over 200 solar hybrid sites. Huawei are rolling out the first 400 sites under Universal Service Fund money as part of the country's bid to improve rural coverage. Unitel acquired a fourth operating license in March 2018 as UZI Zambia, a move which will precipitate further site rollout and investment in network infrastructure as it invests a promised US$350mn.								
Zimbabwe	High	High	Medium	Medium	Low	Medium	Eighty Four Dynamics	Econet NetOne Telecel	Distributed Power Africa (Econet)
	Whilst the grid in Zimbabwe is widespread, power outtages are commonplace. Market leaders Econet have recently formed their own ESCO business - Distributed Power Africa. The MNO has committed to going green and will deploy solar hybrid solutions at all new sites going forward. The MNO is in the process of assessing suppliers to convert 300 existing sites to hybrid systems. Their ESCO business is also targetting other sectors, working with mines and commercial buildings to provide power. Econet Wireless and NetOne signed a network sharing deal in 2019, and continued economic pressures have seen capex reducing year on year. New build volumes will suffer relative to our past baseline of +100 per year.								