analysys
mason

ANALYSYS MASON

QUARTERLY

Consulting and research specialists
in telecoms, media and technology

ISSUE 3 JUL–SEP 2019

Featured in this issue

5G implications for MNOs and towercos

Why are B2B start-ups hot again?

Smart welfare technology new target
for operators

Large scale 5G network deployment

Towercos and the challenge of data
management

Ethiopia telecoms present
opportunities for operators

Contents

Introduction

Welcome to the third Analysys Mason Quarterly for 2019.

In our first article, Chuan Wei looks at how MNOs and towercos will need to respond differently to the network architecture and infrastructure requirements for 5G. MNOs need to fully understand the costs associated with 5G in terms of both capex and opex, whereas towercos must consider how they can maximise revenue from their towers amidst changes to site configuration.

Bram Moerman
CEO Analysys Mason

The number of B2B startups in India and investments in them have increased substantially in past few years. Rohan Dhamija examines in detail how the rise in B2B investments can be attributed to generic and India-specific factors. If the trend continues, 2019 should be the best year funding wise. This has led to Tiger Global Management deciding its new focus in India will be B2B start-ups.

Operators in the Nordic region may be able to build scale within the smart welfare technology market so that welfare solutions for the public sector can become cheaper and more internationally harmonised. Robert Kron highlights two recent Anaysys Mason projects commissioned by the Swedish Post and Telecommunication Agency (PTS) and the Swedish National Digitalisation Council which show that Swedish municipalities could save up to SEK1.6 billion each year.

5G networks are expected to be migrated to standalone architecture in the next few years. Janette Stewart's article discusses the findings from the recently updated Analysys Mason Global race to 5G report. Janette looks at new analysis taking the latest 5G developments into account, the first commercial launches and the new developments in 5G so far in 2019.

Towercos' commercial success increasingly relies on detailed and accurate data about their assets, but many have not invested in advanced data collection and analytics systems. Caroline Gabriel describes how Analysys Mason is partnering with TowerXchange by forming a working group which aims to establish best practice in this challenging area.

Ethiopia is one of the few telecoms markets worldwide that still operates under a monopoly resulting in an underdeveloped telecoms market. Johann Adjovi explains how the Ethiopian government has recently captured the wider attention of the global telecoms industry through its many initiatives to expedite the liberalisation of the telecoms market and open it up to foreign investment.

We welcome the opportunity to discuss your views on these and any other key industry topics. I look forward to hearing from you.

5G will change how mobile networks are deployed, which has important implications for MNOs and towercos

Lim Chuan Wei, Partner, Consulting

The number of 5G deployments is increasing worldwide and these deployments are making use of new spectrum and new technologies. Mobile network operators (MNOs) and towercos will need to respond differently to the network architecture and infrastructure requirements for 5G. More specifically, MNOs need to fully understand the costs associated with 5G in terms of both capex (for example, new equipment) and opex (for instance, site rental), whereas towercos must consider how they can maximise revenue from their towers amidst changes to site configurations, while also identifying opportunities to address the changing infrastructure requirements of MNOs. This article discusses how mobile network deployment is changing in response to 5G technology and examines how these changes will affect MNOs and towercos.

Trends in mobile deployment technology

Massive MIMO antennas for 5G

5G is expected to make extensive use of massive MIMO,[1] particularly in the 3.5GHz band for 5G coverage. Multiple vendors have stated that the beamforming benefits of massive MIMO will enable 3.5GHz to match the coverage of 1.8/2.1GHz, although this requires new antennas in addition to those currently being used for 2G, 3G and 4G.

Use of mmWave small cells for 5G

The mmWave spectrum bands (26/28GHz) are among the bands initially earmarked for 5G deployment. However, their propagation characteristics are significantly inferior to those of pre-5G bands and therefore have a smaller cell radius. Consequently, mmWave outdoor 5G deployments are expected to rely on the use of small cells that will be located closer to end users.

Centralisation of RAN

C-RAN technology pools baseband units in a single location to serve multiple sites, each via a very high bandwidth fibre connection. While C-RAN technology remains in its infancy, its potential adoption in future could reduce the ground space used at tower sites following the relocation of baseband units, which will make fibre connections to tower sites essential.

Implications for 5G deployment

Macro sites

Deploying new massive MIMO antennas on existing towers in order to support 5G can increase tower loading. This is an important consideration because it affects the feasibility of rapid deployment and can also incur additional costs for the MNO (for example, increased site rental costs for leased sites).

Leading antenna vendors such as Huawei and Kathrein are offering '1+1' solutions with one passive multi-band panel for pre-5G deployments and one active massive MIMO panel for 5G. The impact on tower loading from moving to a '1+1' solution depends on the current configuration being used by the MNO.

- Loading from passive antennas for pre-5G deployment will be reduced if the MNO is currently using more than one passive panel (for example, one for high frequency and one for low frequency). Significantly, the use of single multi-band passive panels for pre-5G has increased, and for those sites where this infrastructure has been implemented, loading has been reduced.

- Massive MIMO antennas will be used in addition to passive panels; current panels used for 3.5GHz generally reach up to approximately 0.35 sqm in a cross-sectional area.

Small cells

Small cells need to be placed close to end users, and therefore, existing physical infrastructure such as street furniture (for instance, lamp posts) can be efficiently repurposed to deploy small cells. The use of street furniture for small-cell deployment has been used in leading markets including in the UK and the USA, but deployment can be costly, and therefore deployment locations must be selected carefully.

Fibre

Increasing capacity requirements will drive the need for higher-capacity backhaul, with fibre the preferred technical solution to meet these needs. In addition, adoption of C-RAN architecture will also increase fibre demand for fronthaul to connect centralised baseband units to cell sites. As such, MNOs' demands for fibre are expected to increase, although the capex-intensive nature of fibre deployment may serve as a deterrent to the adoption of C-RAN in areas where fibre is not widely deployed.

Implications for MNOs and towercos

MNOs need to be fully informed about how 5G will affect their network and infrastructure requirements, as well as understand the scale of investment that is required to prepare for 5G. Use of massive MIMO on macro sites could increase tower loading and, as a result, site rental costs, while extensive small-cell and fibre deployment to support C-RAN is also likely to be costly. MNOs must carefully evaluate these costs against the benefits of 5G in order to identify the appropriate level of investment, while alternative solutions such as infrastructure-sharing should also be considered.

Towercos must anticipate the expected changes to tower loading presented by 5G by structuring their lease agreements in a way that enables them to maximise leasing revenue. In addition, towercos can take advantage of MNOs' new requirements for small cells and fibre by serving as neutral hosts, which is likely to be a more cost-effective solution for MNOs than self-deployment. Towercos such as Arqiva and Crown Castle have been actively investing in such areas; other towercos must establish a business plan based on local market conditions in order to determine whether they should follow a similar model.

Analysys Mason advises MNOs and towercos worldwide on a range of commercial and technical issues, including 5G. We have recently helped a number of MNOs with 5G spectrum valuation, as well as conducted research on behalf of leading towercos into the expected evolution of site loading.

[1] Multiple-input and multiple-output.

Why are B2B start-ups hot again?

Rohan Dhamija, Partner, Head of India and the Middle East, Consulting

A comparison of B2B start-up funding statistics for 2018 and 2019 (so far) paint an interesting picture.

133: Number of funding rounds in 2019 so far

1487: Million dollars invested in Indian B2B start-ups in 2019 so far

531: Number of funding rounds in 2018

2837: Million dollars invested in Indian B2B start-ups in 2018

If the trend continues, the cash raised by B2B start-ups in India in 2019 will easily exceed that of 2018 in fewer funding rounds. It means fewer companies are raising more capital than before.

If everything remains equal, 2019 should be the best year, funding wise, for B2B tech companies in India. B2B is in vogue again. So much so that Tiger Global Management, the marquee US-based private equity fund, has decided that its new focus in India will be in B2B start-ups.

There are layers here. Some are easy to understand – for example, the profit margins in these companies are higher than in B2C start-ups. Some layers are more nuanced because they have happened over a period of time and are a result of changes to the regulations.

Let us look at why investment companies are interested in the B2B start-up space.

- **Not hyper-competitive.** The B2B market is market is not as competitive as the B2C market. Some B2B markets, such as logistics, are massive and highly disorganised, and allow for the opportunity to coexist. Also, few B2B companies are venture-backed. The space is occupied by traditional businesses, which have been using non-tech-based solutions for years. Taking on these small, one- or two-people operations is not difficult for a well-funded company. This is different from the consumer-facing market, which is crowded and has bigger audiences.

- **High profit margins.** The profit margins for B2B businesses are usually high because the prices are more or less set by the market. This is relevant whether these businesses are ecommerce or software-as-a-service (SaaS) companies in India or worldwide. Few companies want to take on the status quo. All tech-enabled B2B start-ups do is clear redundancies, which sometimes enables them to decrease their own costs while maximising profits. It also means that with scale the profits increase, and companies quickly reach maturity. This ensures smoother exits for venture investors.

- **Low customer acquisition costs (CACs) and customer loyalty.** This point is closely linked to the first two points in this list. The cost of customer acquisition is low in this market because it is not crowded. The cost of B2B marketing is much lower than that for TV sports or bidding for Google adwords. As most vertical companies offer similar services, customers have little reason to switch to the competitors unless the quality of the service is markedly better. This holds true for a range of companies from those involved in logistics, such as Delhivery, to SaaS companies, such as CleverTap. Customers just stay loyal.

- **Easy to scale:** Once a product market fit is found, reaching out to new customers is relatively easy because there are still a lot of companies, which need a tech layer to eliminate redundancies. Most B2B markets are close-knit communities and a good reputation goes a long way in building a customer base. Most companies also have similar requirements and building layers on an existing customer base is easier than building new services for new customers. Let's take SaaS companies as an example. If a tech start-up has sold payroll software to a small or medium-sized business (SMB), it is easy to ask the company to upgrade by adding a sales-based performance plug-in as well. This will give the SaaS company two layers of implementations in the same company and all it needs to do is show the same proof of concept to other SMBs.

These factors are generic and constant across the world and have been stable for decades. However, the landscape has subtly changed over the years, which has led to an inflection point.

- **Goods and services tax (GST):** The unfurling of GST has been one of the biggest drivers of B2B companies over the years. GST has brought a layer of SMBs into the market, which need to upgrade to digital products that relate to a range of needs such as payments and logistics. Most of these SMBs were barely using digital solutions, GST forced their hand. Additionally, SMBs in India were usually confined to doing business in their own state. Shipping to other states was expensive and time-consuming. GST simplified this and SMBs are more likely to use Delhivery and Rivigo. It also ties into SaaS companies discovering a whole new market that never existed before.

- **Establishment of payments and logistics layer:** A lot of groundwork started when the various payments companies started to establish themselves. They went from lending to small payment gateways to virtual stores. Each of these companies made taking on debt easier. In principal, companies got access to more working capital, which led to more-aggressive expansion and revenue targets. All of them tied into the fact that digital payments were being accepted, which eliminated cash and this tied into GST, which started to build up a perfect storm. The likes of Delhivery and E-com express, which had been primarily catering to e-commerce companies, saw a new brand of customers come on board and used them to expand their services as well. The enthusiasm for B2B has built in the last 4 years and is reaching a peak in 2019.

- **Expertise in producing affordable software:** One of the biggest surprises has been the small boutique SaaS firms that have cropped up, which have been running with little or no venture investment. One of the primary reasons for this has been India's ability to produce software cheaply. In addition, the talent pool is well stocked with people who have been part of this ecosystem for years and have the knowledge and contacts to operate in this industry.

- **Global market opportunities:** Most SaaS companies in India have found consumers in the USA. This, according to experts is a recent phenomenon, for one primary reason. Several US-based SMBs have started to digitalise their businesses. India and other South Asian countries are able to export technology at reasonable cost. Experts also suggest that a change to US immigration policy has meant that US-based companies have not been able to hire as freely as they could and are therefore awarding larger projects to Indian companies.

- **Enthusiasm for artificial intelligence (AI), the internet of things (IOT) and robotics:** More than 75% of Indian B2B start-ups work in AI, IoT or robotics. It may appear as if a bubble is forming in the Europe and the USA, and AI may be too expensive to use in traditional businesses in India. However, if plotted on a graph, the capital costs for robotics and manpower costs are going to start to come closer as time goes by and investment in these companie are early stage bets, which may pay off in a big way when enough time passes.

- **B2C creating a market for B2B:** Tremendous growth in B2C start-ups has created a huge market for B2B solutions and services, like logistics, HR support, advertising, etc. The recent claim of three B2B start-ups (Freshworks, Delhivery and Udaan) to unicorn status (valuation of more than USD1 billion) is supported by business given to such start-ups by numerous, venture-backed B2C start-ups.

- **Increased corporate involvement:** Indian corporations have slowly started seeing potential in homegrown start-ups. This trust is evident through both a higher number of corporate accelerators and increased business with Indian start-ups. There were only two corporate accelerators in India in 2014, but today the number is above 50, as big companies are looking to invest in start-ups that can offer solutions for problems they are struggling with. Also, Indian corporations are entering into business transactions with Indian start-ups because they provide cheaper and quicker solutions than their foreign counterparts. HUL's business with Locus and Grey-orange is just one of many examples.

Investment in B2B is peaking in India in 2019 and all of the above factors have contributed to this. Tiger Global's announcement has brought the sector into focus again and it is probably one of India's strongest tech layers yet. B2B is always categorised as the next wave after B2C matures. In India, it may go the other way.

Smart welfare technology and the public sector may be new target markets for operators

Robert Kron, Principal, Consulting

Approximately 95% of households and businesses in Sweden now have access to broadband with a speed of at least 30 Mbit/s, and the situation is similar in the other Scandinavian countries. Thanks to this widespread broadband connectivity, the public sector can invest in smart welfare technology in areas such as elderly care, waste management and transport as a way to streamline organisation and cut costs. Such increased efficiency in the public sector is necessary given the demography of the Nordic countries (and the rest of Europe); the share of the population that is above 65 years old will increase from just above 30% in 2010 to just below 40% in 2030.

Analysys Mason recently performed two projects for the Swedish Post and Telecommunication Agency (PTS) and the Swedish National Digitalisation Council that assessed the economic benefits for municipalities from investing in smart welfare technology in the home-based elderly care sector. The studies considered four services and show that Swedish municipalities could save up to SEK1.6 billion each year (Figure 1). Additional benefits include reduced CO_2 emissions, improved quality of life for service users and increased safety for their relatives. Interviews with local and regional representatives confirmed that the public sector is likely to rely on smart welfare technologies to deal with the financial strain of an aging population.

However, investments in these smart welfare technologies are currently more expensive than they ought to be, because the common market for them is internationally fragmented as most governments prefer to buy from national suppliers.
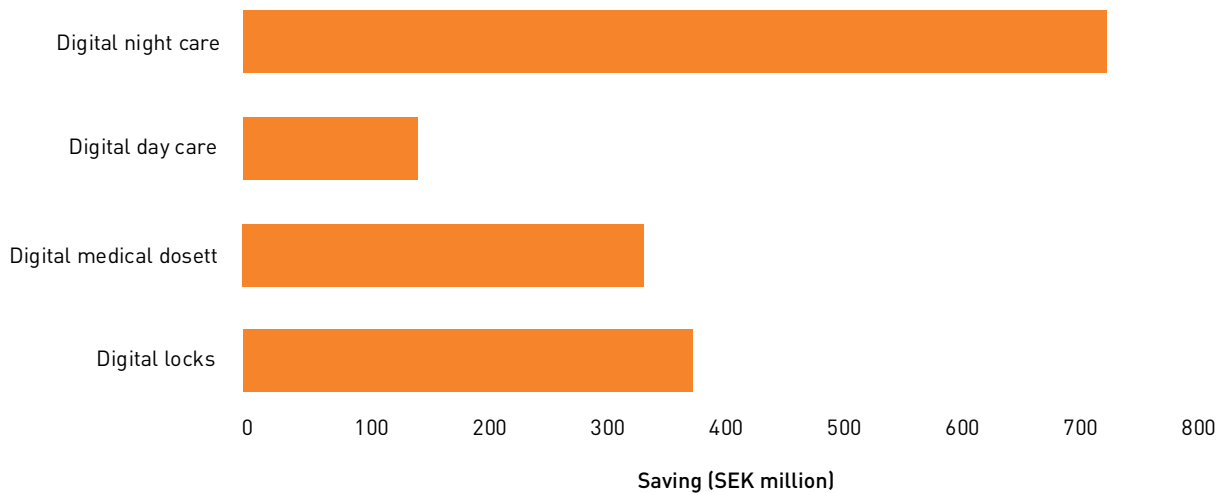

FIGURE 1: TOTAL SAVINGS FOR ALL SWEDISH MUNICIPALITIES, BY SERVICE, 2018
[SOURCE: ANALYSYS MASON, 2019]

As mobile data gets cheaper, operators are expected to move up the value chain and offer both content and IoT-related services based on their broadband infrastructure. Nordic operators already offer services such as remote patient monitoring, digital locks and mobile workflows, as well as other smart solutions in public transport, low-carbon technology and health care. For example, Telenor is already working with Norwegian municipalities on various IoT-related services, and Telia is establishing collaborations with several Swedish municipalities and regions to work on home-based elderly care and public transport as part of its Telia HealthCare programme.

Operators in the Nordic region may be able to build scale within the smart welfare technology market so that welfare solutions for the public sector can become cheaper and more internationally harmonised. However, until now, these operators have only held a small fraction of the market, and they may have to redesign their business models if they wish to become more dominant. Similar developments may also be seen in other parts of Europe once the broadband connectivity has reached a high enough level.

Analysys Mason has a good understanding of the public sector and is ideally positioned to help operators explore the potential of smart welfare solutions.

Questions?
Please feel free to contact Robert Kron, Partner, Consulting
at robert.kron@analysysmason.com

5G networks are now being deployed on a large scale while work continues on the more-complex features

Janette Stewart, Principal, Consulting

Analysys Mason recently updated its *Global race to 5G* report, which was originally published in April 2018 and commissioned by the US cellular industry trade association, CTIA.[1,2] The new report was released in April 2019, and includes new analysis that takes the latest 5G developments into account, including the first commercial launches.[3] The key objectives of the report were identifying the main 5G deployments worldwide and comparing them with those in the USA. As such, both the original and the updated report contrast and rank the 5G readiness in the nations considered.[4]

There have been a number of new developments in 5G so far in 2019

The latest report provides details about the technical and commercial launch of 5G networks in several countries worldwide. Most of these networks support consumer-based mobile broadband services in the 3.5GHz '5G mid-band' range of frequencies using the non-standalone (NSA) implementation specified in the 3GPP standards. This is most likely to be because many of the 5G consumer devices that are becoming available for use in 2019 support this frequency band (one of the 3GPP 5G Frequency Range 1 (FR1) bands below 6GHz). By contrast, 5G services in the USA have initially been launched using the higher Frequency Range 2 (FR2) spectrum in the millimetre-wave range (specifically the 28GHz band in the USA). Regulators in many other markets worldwide are also looking at making millimetre-wave spectrum available, initially either at 28GHz, 26GHz, or both.
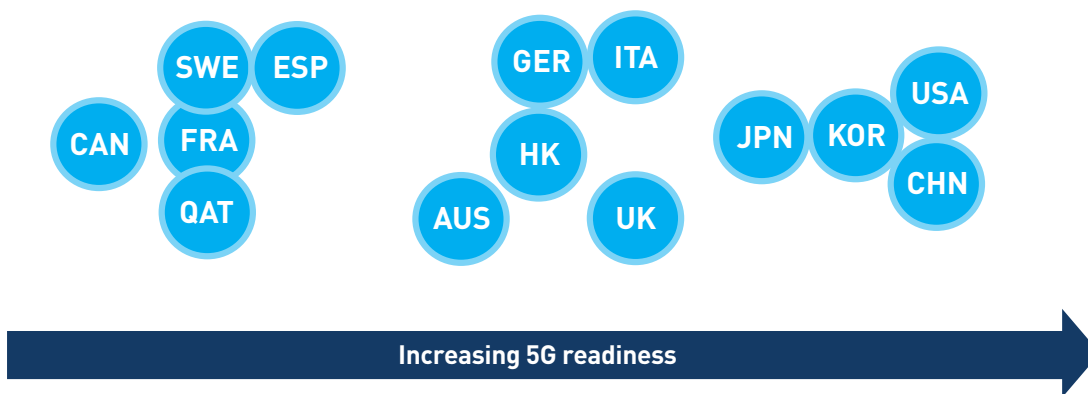

FIGURE 1: OVERALL 5G READINESS SCORES, 2019
[SOURCE: ANALYSYS MASON, 2019]

The latest country rankings for 5G readiness show that the USA has moved from third place in 2018 into joint-first place with China. South Korea, Japan and the UK follow, in that order. This is illustrated in Figure 1, using a composite index that reflects 5G readiness in terms of industry commitments, the amount of low/mid/high-band spectrum and the timelines for its availability, the total mobile spectrum allocated for 5G and the government support for 5G.

As explained in the report, the improvement in the USA's position compared to that in 2018 is due to significant investment in 5G networks by the US wireless industry, action from the government and FCC to reform infrastructure policies and a commitment from the FCC to make more spectrum available to wireless operators. However, the availability of 5G mid-band spectrum must improve rapidly if the USA is to retain this lead in the coming years. The availability of 3.5GHz spectrum in countries other than the USA has further improved since the publication of our updated report in April 2019; auctions of 3.5GHz spectrum have been completed in Austria and Germany and are at an advanced planning stage in several other countries. It has also become clear that 5G NSA networks will be launched in China using several FR1 bands (2.6GHz and 3.5GHz). Our report found that the USA ranked tenth for the availability of mid-band spectrum; this is in stark contrast with its joint-first rank for both industry 5G commitment/deployment (along with South Korea) and the availability of low (below 3GHz) and high bands (FR2).

5G networks are expected to be migrated to standalone architectures in the next few years

One consequence of 5G services being rolled out using NSA implementations in the 3.5GHz band is that 4G (LTE) technologies are still required to manage network connections. Over time, it is expected that this will change. Networks will migrate to a standalone (SA) architecture,[5] potentially using a variety of FR1 and FR2 bands seamlessly across different environments and coverage areas. The launch of standalone networks is expected to be the point at which the full range of anticipated 5G services will emerge, including improved capabilities for mobile operators to provide industry-specific services tailored to the needs of different vertical sectors. There is also the possibility that standalone industrial networks will emerge as an alternative to using a mobile operator's network for industrial use cases (subject to suitable spectrum being available). However, many complexities remain because the specifications for 3GPP Release 16 are still being worked on.

Operators will also need to ensure a smooth migration to SA networks, having launched NSA implementations initially (in terms of device capabilities, coverage areas and the frequencies used, for example). We have assumed that operators in countries where 5G NSA implementations have already been launched will be well-placed to migrate these services to SA in due course.

Analysys Mason's consulting advice can help operators and regulators to clarify the challenges of 5G.

[1] CTIA is the leading trade association for the wireless industry in the USA. It represents companies in all parts of the wireless ecosystem including mobile network operators, equipment manufacturers, software providers and other providers of products and services involved in the mobile wireless marketplace.

[2] CTIA (2018), Global Race to 5G – Spectrum and Infrastructure Plans and Priorities. Available at https://www.ctia.org/news/global-race-to-5g-spectrum-and-infrastructure-plans-and-priorities.

[3] CTIA (2019), The Global Race to 5G Spring 2019 Update. Available at https://www.ctia.org/news/the-global-race-to-5g-spring-2019-update.

[4] Australia, Canada, China, France, Germany, Hong Kong, Italy, Japan, Qatar, Spain, South Korea, Sweden, the UK and the USA.

[5] Or a non-standalone architecture where the 5G network controls connections; for simplicity, we refer to these as 5G standalone, as they are not contingent on 4G connections.

Questions?
Please feel free to contact Janette Stewart, Principal, Consulting
at janette.stewart@analysysmason.com

Data management is a pressing challenge for towercos in a time of change

Caroline Gabriel, Principal Analyst, Research

Analysys Mason and TowerXchange, the leading organiser of events for the towerco sector, are jointly leading a new working group dedicated to the increasingly business-critical topic of data utilisation and visualisation. We conducted a detailed study of 48 towercos and MNO tower operating units, and shared our findings at the latest TowerXchange Meetup Americas event in Boca Raton, Florida in July. The results of the study are included in our report entitled Towerco data management: improving the relationship with MNOs.

The next steps for the working group are to prioritise actions which could help to address the challenges of data collection and analytics in the towerco sector, with the aim of establishing best practice and making a strong business case for investing in advanced data systems.

Improved data management will help towercos to manage denser, more-diverse networks

Many towercos are looking for new sources of revenue growth that are related to MNOs' deployments of the denser, more-complex networks that are needed for 4G expansion and 5G. Towercos are considering extending their neutral host model to include small cells, edge computing, fibre and value-added services.

With many additional elements to manage, it will be increasingly important to have accurate and up-to-date data
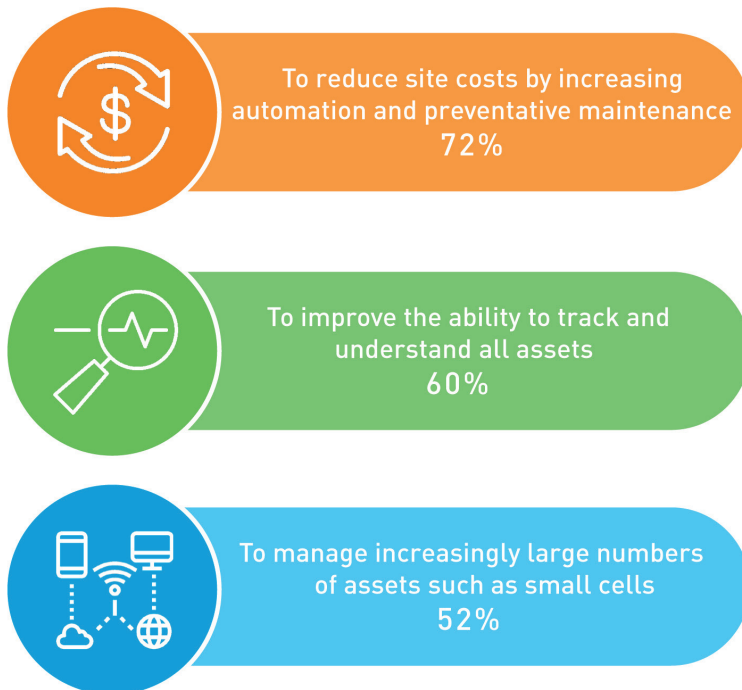

To reduce site costs by increasing automation and preventative maintenance
72%

To improve the ability to track and understand all assets
60%

To manage increasingly large numbers of assets such as small cells
52%

FIGURE 1: TOP THREE TOWERCO ASSET MANAGEMENT OBJECTIVES (THE PERCENTAGE CITING EACH AS A TOP-THREE OBJECTIVE IS INDICATED)
[SOURCE: ANALYSYS MASON, 2019]

about all these assets, in order to understand performance and pre-empt problems. Our survey established the top three objectives for towercos that wish to improve their asset management during 2019–2022 (see Figure 1). Attendees at the working group meeting agreed that advanced data collection, analysis and visualisation would contribute to achieving these objectives.

Better data management may help towercos to achieve the objectives listed in Figure 1 in the following ways.

- It could allow towercos to receive real-time information about site performance and potential problems.

- It could enable advanced analytics to support a more accurate valuation of assets when negotiating tenancies, acquisitions or service level agreements (SLAs).

- It could provide predictive capabilities for planning site additions, upgrades and maintenance.

- It could allow towercos to share data with an increasingly complex set of partners and customers.

Towercos have under-invested in data systems and a gap remains between aspirations and reality

Our research revealed that there is a deep gulf between towercos' aspirations and their real-world practices in many cases. Most towercos admitted to using Excel as their primary tool, and there were significant gaps in their knowledge of their tenants' equipment and even their own assets. Many acquire tower portfolios with very incomplete data about the equipment involved; some only monitor critical sites. In an extreme example, two respondents admitted to only knowing the precise location of 35% of their sites, yet they were keen to adopt AI-enabled analytics.

Several respondents highlighted that towercos have not typically invested heavily in IT and data systems, and this has created an intelligence gap between them and their MNO tenants.

Many towercos first need to invest in automated systems to collect accurate data rather than relying on site visits, but an even greater challenge is to integrate and cross-reference every source of data (either the towerco's own or a third party's) to enable rich, forward-looking decision making and to underpin fully automated management processes.

One working group member said, "It's like we have connected homes, but no intelligence to combine them. Some people have data on network performance, some on assets, some on power – there is no aggregation or analysis."

The case for investing in data systems must be made around a step-by-step approach based on best practice

Some towercos envisage a 'big bang' approach to implementing data management, but most say that their executive teams will be more convinced by a gradual approach, with clear returns at each stage. "We are still getting data collection right, then we can define the KPIs, then refine them," said one participant.

A relatively low-risk first step is to introduce smart on-site devices to collect information automatically about metrics such as power consumption or antenna weight. This could immediately achieve a key objective for towercos: to reduce the number of costly site visits required to identify the equipment on a particular tower in order to bill MNOs accurately.

However, there is a big difference between asset tracking and the monitoring of asset performance. An even bigger difference exists between these processes and proactive trouble-shooting and forward planning. Such activities will require not only data collection, but also the ability to visualise and analyse it in a detailed way. Emerging solutions include augmented reality overlays of on-site equipment for remote monitoring and the use of crowd-sourced data to establish usage per site.

The respondents of our survey were open about the lessons that they could learn from MNOs, but there are still areas in which they have better knowledge than their key tenants. Most working group members felt that open frameworks for sharing data and achieving a common view of the whole network would be helpful. In particular, it would be valuable for infrastructure designs to be easily integrated into MNOs' radio plans, and to correlate towerco asset tracking with MNO network performance monitoring, so that the relationships between the two could be understood and actions could be taken.

This ability to share data forms the basis of the key goals of the working group: to listen to the views and experiences of the towercos and their suppliers, to identify areas of best practice and strong market solutions and to drive a consensus about next steps, in order to ease towercos' path to achieving full business intelligence.

Questions?
Please feel free to contact Caroline Gabriel, Principal Analyst, Research at caroline.gabriel@analysysmason.com

The liberalisation of the telecoms market in Ethiopia presents a new opportunity to operators worldwide

Johann Adjovi, Principal, Consulting

Ethiopia is one of the few telecoms markets worldwide that still operates under a monopoly. Government-owned Ethio Telecom (Ethiotel) controls Ethiopia's mobile market, as well as the fixed telephony and fixed broadband markets, and the international gateway. This monopoly has resulted in an underdeveloped telecoms market: as of the end of 2018, only 42% of Ethiopians have a mobile phone, and only 14% have mobile broadband, which is low compared with other countries of a comparable size within the region, including Egypt, Sudan, Tanzania, Kenya and Uganda (see Figure 1). However, the government in Ethiopia has recently captured the wider attention of the global telecoms industry through its many initiatives to expedite the liberalisation of the telecoms

market and to modernise the local telecoms infrastructure. This article discusses these initiatives in more detail.

Ethiopia has low mobile SIM penetration, poor mobile broadband take-up and low levels of international connectivity

Mobile SIM penetration of the population and mobile broadband take-up in Ethiopia are both low compared with other developing countries worldwide, and these trends are driven primarily by high mobile tariffs and the country's poor network coverage (see Figure 2). While 2G networks are widely available in Ethiopia (99% population coverage), 4G coverage is restricted to the Ethiopian capital of Addis Ababa.

Ethiopia also has a notably low level of international connectivity, with international capacity to this landlocked country being provided exclusively by terrestrial cables. This has resulted in an average of only 0.6kbit/s of international bandwidth per capita, whereas Ethiopia's neighbour, Sudan, has nearly four times as much (2.5kbit/s per capita), and Kenya's and Egypt's international bandwidth per capita is significantly higher at 17kbit/s and 14kbit/s, respectively.

Ethiopia's telecoms market is opening up to outside investment, with interest from regional and global telecoms groups
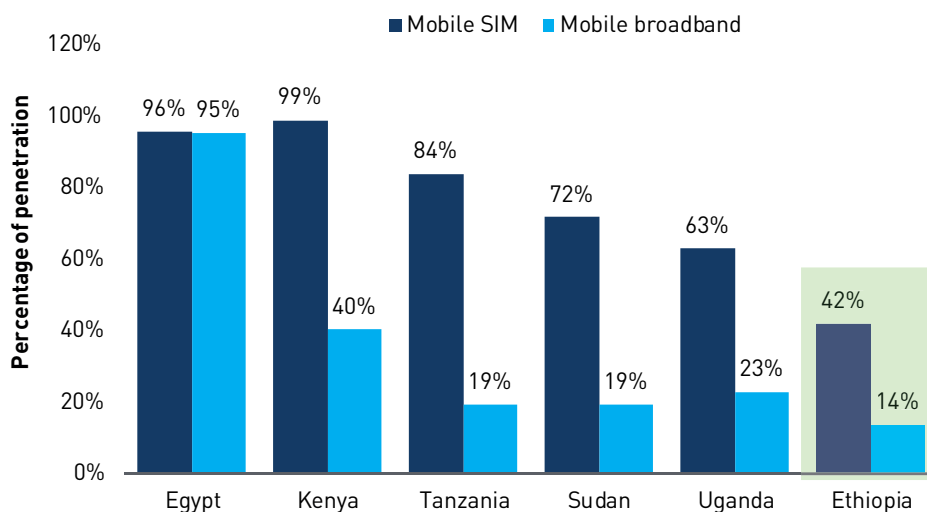

FIGURE 1: COMPARISON OF MOBILE SIM AND MOBILE BROADBROAD PENETRATION IN ETHIOPIA AND IN NEIGHBOURING COUNTRIES, 2018
[SOURCE: ANALYSYS MASON, 2019]

However, Prime Minister Abiy Ahmed declared in June 2019 that Ethiopia will privatise and liberalise its economy to spur competition in several critical sectors, including telecommunications. The World Bank is also supporting the government in Ethiopia with implementing these institutional reforms. The Ministry of Finance has recently clarified that the government will adopt the following strategies to liberalise the telecoms market and open it up to foreign investment.

- An independent regulatory authority will be set up to oversee the development of the telecoms sector in Ethiopia.
- Two new licences will be issued, for which foreign operators can bid.
- A significant (minority) stake of Ethiotel will be divested and made available for foreign investors to acquire.

Many regional and global telecoms group across the value chain (including operators such as Etisalat, MTN, Orange, Viettel and Vodafone) have already expressed an interest in bidding for these licences. This liberalisation of the telecoms market is expected to introduce competition to the market and help address the key challenges around high tariffs and low mobile SIM and broadband penetration.

The liberalisation of Myanmar's underdeveloped telecoms sector could serve as a useful predictor of how successful similar changes will be in Ethiopia. When the government in Myanmar liberalised the telecoms sector in 2013, mobile SIM penetration accelerated from 10% to 99% and mobile broadband penetration increased from 3% to 67% within only 4 years. Liberalisation paved the way in Myanmar for reduced prices and increased mobile SIM penetration and higher international bandwidth.

- Prior to liberalisation, the only operator in the country offered SIM cards for as high as USD300. The entry of two new players reduced the price of a SIM card to just USD1.50.
- Mobile broadband penetration also quickly rose from 3% in 2013 before liberalisation to 67% in 2017 after liberalisation.
- International connectivity increased significantly in Myanmar, from only one international gateway and a single international submarine cable prior to liberalisation, to six international gateways and three submarine cables after liberalisation.

Most of the major operator groups are likely to consider the investment opportunity in Ethiopia – either to acquire a stake in Ethio Telecom or to deploy greenfield operations. When assessing this opportunity, operators will need to carefully consider how the legal/regulatory environment is likely to change, as well as understand the demand characteristics and the other challenges of this market. Analysys Mason has built a solid track record of successfully supporting market entrants and can assist in assessing the Ethiopian opportunity and identifying the key success factors for entering this untapped market.
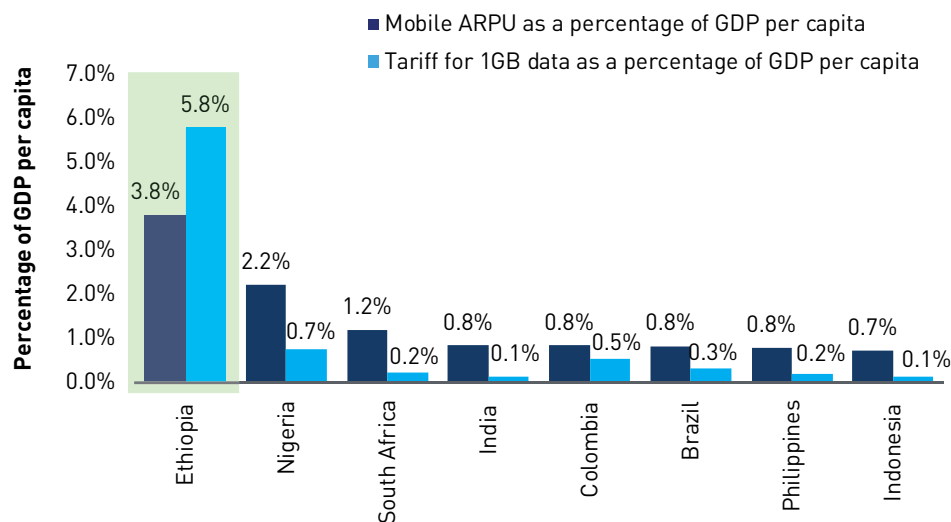

FIGURE 2: MOBILE ARPU AND ANNUALISED TARIFF FOR 1GB OF DATA AS A PERCENTAGE OF GDP PER CAPITA, 2018
[SOURCE: ANALYSYS MASON, 2019]

Questions?
Please feel free to contact Johann Adjovi, Principal, Consulting at johann.adjovi@analysysmason.com

Developing cost models for next generation telecoms networks in Zambia

CASE STUDY

The problem

The Zambia Information and Communications Technology Authority (ZICTA) sought to undertake a wide-ranging cost study of telecoms services in Zambia. This study had several key objectives:

- develop cost models for next-generation technologies, in order to determine the unit costs of providing voice and data services

- derive a weighted average cost of capital for a telecoms business operating in Zambia

- understand the retail costs of Zambian operators

- recommend an appropriate regulatory regime covering voice, broadband and bundled services in the Information and Communication Technologies (ICT) sector in Zambia.

The solution

Analysys Mason undertook an initial exercise of benchmarking Zambia against a peer group of other African countries to better understand how it compared, both in terms of telecoms services and macro-economic development.

Analysys Mason then developed a suite of modules to consider the costs of both network and retail operations in Zambia. Mobile, fixed core, fixed access and broadcasting signal distribution (BSD) networks were all modelled. Retail costs were analysed separately. The analysis was undertaken in co-operation with industry stakeholders, which were invited to two workshops on the development of the modelling suite. A data-gathering exercise was also undertaken to ensure the cost modules were parameterised to appropriately reflect the costs of operating in Zambia.

Industry stakeholders were also invited to comment on the draft modules before they were finalised.

The result

The modules generated a wide range of cost results, which were discussed with ZICTA in multiple workshops. ZICTA's staff now have a deeper understanding of the underlying costs of mobile, fixed and broadcasting services.

Analysys Mason then worked with ZICTA to produce a set of recommended regulations that ZICTA could apply to the market going forward.
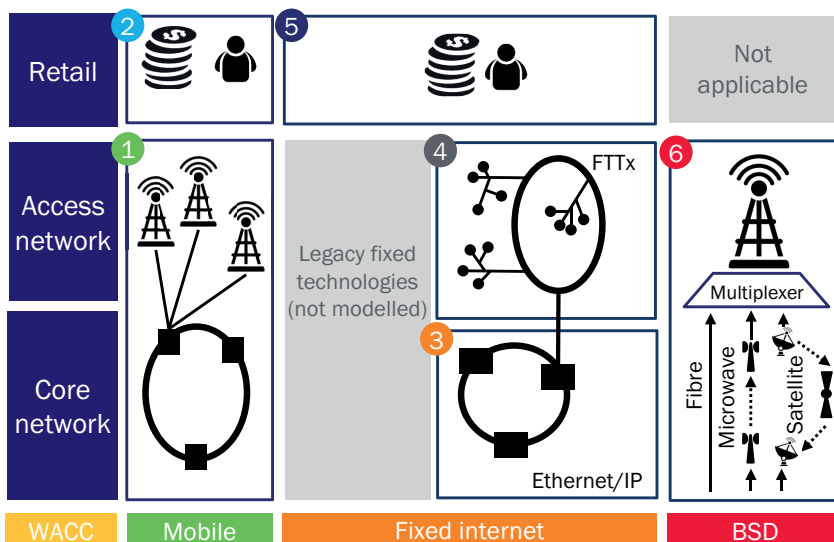

FIGURE 1: STRUCTURE OF THE TELECOMS SECTOR IN ZAMBIA
[SOURCE: ANALYSYS MASON, 2019]
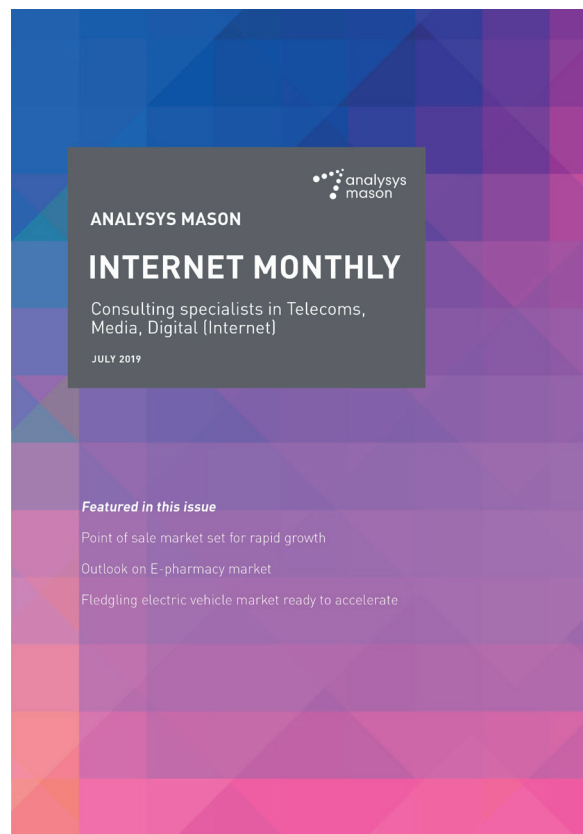
India internet monthly newsletter

In the July 2019 edition of our India internet monthly newsletter, we assess three new sub-sectors within the digital/start-up space that have been the focus of many of our recent discussions with investor clients.

This month's articles focus on the following three areas: the point-of-sale (POS) devices space (and particularly Jio's entry into this market), the e-pharmacy space and the investor interest in this market (and last week's USD70 million investment in one of the players), and the electric vehicle space, which has experienced significant investor interest (one of the leading founders in this market, Aishwarya Kacchal, has contributed to this article).

The digital transaction market, particularly the POS devices sub-segment, in India is set for rapid growth thanks to the government's push on adoption of digital technology and financial inclusion of more than 60% of India's rural and semi-urban population. Around 80% of the retail market in India is still unorganised. Tier-2 and Tier-3 cities and rural areas are still highly underpenetrated in terms of POS terminals. As more customers and merchants adopt digital modes for transactions driven mainly by the proliferation of technology and ease of use, the POS sector will be worth USD400 billion by 2022. This represents growth at a CAGR of 20%, and POS transactions will account for 14% of total private final consumption expenditure in India by 2022.

The e-pharmacy market in India is at an early stage with online sales contributing to just 1.5% of total pharmacy retail sales. However, the e-pharmacy market is likely to grow at a CAGR of about 54% to reach about USD2.1 billion by 2023, up from USD370 million in 2019. Growth will be driven by the strong value proposition of e-pharmacies for end consumers, increased investment activity in the sector and the expected government regulations. The unit economics of the e-pharmacy players are expected to improve as discounting reduces and economies of scale are realised in order fulfilment.

The electric vehicle market in India is still in a nascent state, accounting for less than 1% of the total number of automobile sales in FY2019. This is primarily because of high upfront prices, a lack of publicly available battery-charging infrastructure and a lack of good-quality products. However, a few inflection points, such as a well-defined policy roadmap and the entry of established original equipment manufacturers, could propel the adoption of electric vehicles over the next few years. Driven by these inflection points, we expect the market to grow to 7 million units by FY2024, up from 0.8 million units in FY2019.
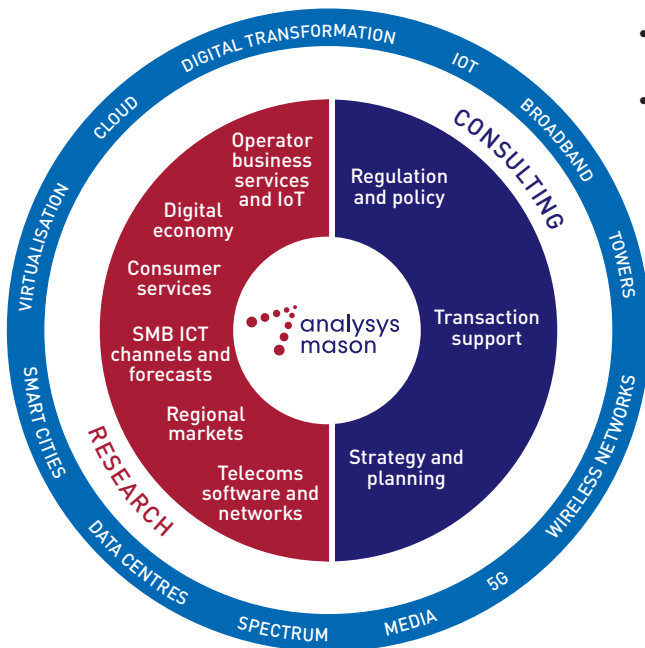
analysys mason

ANALYSYS MASON

INTERNET MONTHLY

Consulting specialists in Telecoms, Media, Digital (Internet)

JULY 2019

Featured in this issue

Point of sale market set for rapid growth

Outlook on E-pharmacy market

Fledgling electric vehicle market ready to accelerate

Download: To receive your free copy please go to https://www.analysysmason.com/Research/Content/White-papers/india-internet-monthly-newsletter-july-2019/

Analysys Mason's consulting and research are uniquely positioned

Analysys Mason is the global specialist adviser on telecoms, media and technology (TMT). Since 1985, Analysys Mason has played an influential role in key industry milestones and helping clients through major shifts in the market. We continue to be at the forefront of developments in the digital economy and are advising clients on new business strategies to address disruptive technologies.

See what clients have to say about working with us: www.analysysmason.com/client-testimonials

About our services

At Analysys Mason, we understand that clients in the TMT industry operate in dynamic markets where change is constant. Our consulting and research has helped shape clients' understanding of the future so they can thrive in these demanding conditions.

Consulting

- We deliver tangible benefits to clients across the telecoms industry
- Communications and digital service providers, vendors, financial and strategic investors, private equity and infrastructure funds, governments, regulators, broadcasters and service and content providers
- Our sector specialists understand the distinct local challenges facing clients, in addition to the wider effects of global forces
- We are future-focused and help clients understand the challenges and opportunities new technology brings.

Research

- Our dedicated analyst team tracks and forecasts the services accessed by consumers and enterprises
- We offer detailed insight into the software, infrastructure and technology delivering those services
- Clients benefit from regular and timely intelligence, and direct access to analysts.

❝Analysys Mason is the global specialist adviser on telecoms, media and technology (TMT). Since 1985, Analysys Mason has played an influential role in key industry milestones and helping clients through major shifts in the market. We continue to be at the forefront of developments in the digital economy and are advising clients on new business strategies to address disruptive technologies. ❞

Stay connected

You can stay connected by following Analysys Mason via Twitter, LinkedIn, YouTube or RSS feed.

- @AnalysysMason
- linkedin.com/company/analysys-mason
- youtube.com/AnalysysMason
- analysysmason.com/RSS/
- analysysmason.podbean.com