

Expanding Mobile Networks Deep into Africa

Innovative design and a NaaS business model break through coverage barriers

Snapshot



Situation

Many rural areas in sub-Saharan Africa have no telecom infrastructure or power grid, leaving millions of people without mobile coverage.

Why NaaS?

A Network as a Service (NaaS) business model offers an efficient, affordable way for Africa's tier-1 mobile operators to expand their rural coverage.

Results

Africa Mobile Networks currently operates 2,450 sites in 12 countries across sub-Saharan Africa. The company plans to reach 3,500 sites by the end of 2022.

ABOUT AFRICA MOBILE NETWORKS

Africa Mobile Networks (AMN) owns and operates network infrastructure that delivers services for the biggest mobile operators in Africa. Its NaaS model allows operators to expand their coverage deep into rural areas with no capital investments. AMN is a founding member of the Telecom Infra Project (TIP).

ABOUT TELECOM INFRA PROJECT NAAS WORKING GROUP

The TIP NaaS Working Group is an industry coalition that works closely with partners to help scale NaaS models globally using its expertise in business models, site planning, and network design.

CHALLENGE

In the remote parts of the world that the internet does not yet reach, mobile connectivity can change lives. An entrepreneur can sell goods and services to online buyers. A farmer can find up-to-date information about market prices. A midwife can call for help for a mother in labor. A worker can send money to family in another village without paying high fees for a courier.

But for mobile operators, connecting these extremely rural communities is not always feasible. As of 2021, 140 million of the 1.16 billion people living in sub-Saharan Africa had no access to a mobile network. Of the 1.02 billion with coverage, 60 million have 2G coverage, while 290 million have 3G coverage and 670 million have 4G coverage.¹ Many of these regions have no power grid and no existing backhaul infrastructure. As a result, mobile operators direct their limited capital to more densely populated areas where they can serve more subscribers.²

SOLUTION

AMN designed a turn-key solution to bring 2G, 3G, and 4G voice and data connectivity to remote villages in sub-Saharan Africa, connecting communities that had never before had access to a mobile network. The company's mission is threefold: build sites where there is no existing service, provide growth opportunities to tier-1 network operators, and deliver profits to shareholders. So far, AMN has done all three with spectacular results.

The network has brought with it a bounty of new economic and personal opportunities. Some villagers have found work selling airtime or teaching digital skills to others. With access to financial services like mobile money accounts, people can save and transfer money reliably. Instead of sending letters, families can stay connected through voice and data services. For policymakers, AMN's network provides a way to channel billions of dollars in capital meant for infrastructure development in emerging markets to where it's needed.

The key to AMN's success is its NaaS business model, which allows AMN to specialize in rural connectivity without typical operator legacy systems and overhead. In this model, AMN owns and operates the access network and local backhaul, building sites to reach new service areas. AMN connects these sites to the existing core networks of operators who access the

BENEFITS



Access to digital economy, mobile financial services, and telemedicine



Subscriber growth and service expansion for tier-1 network operators



Large, economically sustainable market opportunity for NaaS Providers

network through wholesale agreements. The operator routes all network traffic and gains new incremental revenue from the sale of airtime. Because they don't need to invest any capital, operators can easily expand their services into rural communities. More operators means more competition, which translates into lower costs for subscribers.

There are two commercial models for operators to choose from, depending on their business goals. In a revenue-share model, AMN claims a share of the revenue generated by a site while accepting all operational risk. In an OpEx model, AMN builds sites wherever the operator chooses in return for a fixed fee per site, per month. Operators can also choose a hybrid model, which balances the risk and reward between the operator and AMN.

TECHNOLOGY

AMN's sites are optimized for rural environments, delivering services to smaller, more remote communities than ever possible before. A unique site design integrates power, backhaul connectivity, and the local access network into



a single structure that can be deployed within a matter of hours. Because they run on solar power, these sites are self-sustaining and environmentally friendly. Small cells deliver a signal strong enough to cover a village, and each site can be upgraded to add more capacity to meet demand. Sites are connected via a two-way satellite link optimized to minimize latency and jitter, even during harsh rainy seasons.

But getting mobile services into the hands of the people takes more than a network. That's why AMN worked with manufacturers to develop ultra-low-cost smartphones. Local villagers receive training so they can serve as mobile ambassadors, helping others in their community learn how to use their phones and connect to the network.

For its innovative work in closing the digital divide, Euroconsult awarded Intelsat and AMN the "Mobile Connectivity/Universal Access Award" as part of its Awards for Excellence in Satellite Communications in 2020.³

NEXT STEPS

Today, AMN operates nearly 2,450 sites in 12 countries with more than 2 million subscribers. That number is set to grow to 3,500 sites by the end of 2022.⁴

Ultimately, AMN aims to connect nearly 40 million subscribers with more than 10,000 new sites.⁵

RESULTS

2,450
Sites in 12 countries

2 Million+
Current annual subscribers

Source: Africa Mobile Networks, June 2022

AMN is an exciting example of how NaaS can overcome barriers in mobile network deployment. It's one of several success stories that TIP is studying as part of its NaaS Solution Project Group, which explores how to accelerate and lower the cost of network deployments. With its groundbreaking work in business model and site design, AMN is helping the mobile ecosystem understand how to bring telecom services—and the benefits of connectivity—to everyone.



To learn more about AMN, visit amn.com.



For resources and information about how to support adoption for ultra-rural, rural, and first-time internet users, visit telecominfraproject.com/naas.

1. Coverage figures from Facebook internal data.
2. "AMN to pump \$550m into African mobile infrastructure", Biztech Africa, September 2013.
3. "Intelsat and AMN Recognized for Accomplishments in Closing the Digital Divide", Intelstat, November 2020.
4. *Africa Mobile Networks*, June 2022.
5. "AMN and Facebook Collaborate to Drive Mobile Connectivity in Africa", PRWeb, February 2016.



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