

How ICT can empower people and reduce poverty

On September 25, 2015, the UN ratified its hugely ambitious agenda: Transforming our world: the 2030 Agenda for Sustainable Development. Centered on the commitment to “end poverty, protect the planet, and ensure prosperity for all,” the resolution is distilled into 17 sustainable development goals (SDGs). Though disparate in aim, each has one thing in common: ICT is the fuel that can power change. But, it isn’t sweeping metaphors about tech’s benefits that will change the world; instead, it’s small steps in places where change is most needed.

By Gary Maidment

Empowering girls and women

In May 2018, Stacey Cunningham became the first female leader of the New York Stock Exchange since the institution was founded some 200 years ago. Given that the US sits at number 10 in the UN’s Gender Inequality Index of 188 countries, the fact that Cunningham’s appointment is newsworthy in 2018 is in itself newsworthy. Globally, gender inequality in the labor market extends far beyond the boardroom and any one country, hitting economies hard. A 2016 OECD report on development and gender estimates that gender-based discrimination costs the global economy a staggering US\$12 trillion per year.

Today more than ever, digital access is one of the strongest empowerment tools for girls and women. In our 2018 Huawei ICT Sustainable Development Goals Benchmark, which measures ICT development against

the attainability of SDGs, we found that SDG 5 (gender equality) shows the fourth highest correlation with ICT infrastructure. On a personal level, ICT connects women to the global community, giving them access to the educational tools and opportunities to live better, fairer lives. And for nations, enabling half of the workforce to make a meaningful contribution is simply good for their bottom line – the OECD estimates that gender parity will increase GDP the tune of 0.03 to 0.6 percent in global GDP by 2030.

Bangladesh: Training on the move

In terms of connectivity, Bangladesh doesn’t fair well, ranking 78th out of the 79 countries measured by Huawei’s 2018 Global Connectivity Index.

As of 2017, only 33.04 percent of females were participating in the nation’s workforce, nearly 50 percent lower than the 80 percent of men who work.



SUSTAINABLE DEVELOPMENT GOALS



Educationally, the relative parity that Bangladeshi girls and boys enjoy in primary and secondary education drops off in higher education, with considerably more barriers existing for girls. Thus Bangladeshi women are falling behind in the digital age.

In 2017, the government's ICT Division partnered with the telco Robi Axiata and Huawei to empower the nation's women through a three-year training project: Digital Training Buses for the Sustainable Development of Women through ICT. Providing six buses fully equipped with training equipment to teach digital skills, the project aims to reach 240,000 women across 64 of the nation's districts. Each bus comes equipped with 25 work stations, a laptop per trainee, learning software, customized training modules, a standby generator, and wireless connectivity. Basic course content includes computer literacy, Internet use, and mobile banking.

Mobile banking in particular is a key skill to learn, given that 85 percent of Bangladeshi's lack bank accounts. It's also an area in which Huawei is active alongside bKash, Robi Axiata, and other local partners, and is likely to evolve as a key enabler of economic development for the nation of 165 million.

The training buses can reach women in rural communities who can't make it to centers in bigger cities, and it's far cheaper than setting up and running fixed training centers in remote locations.

In Bangladesh, a few steps in the digital direction are making a huge difference in women's lives and, in the bigger picture, to gender equality and the nation's long-term economic well-being.

Empowering unconnected communities

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Inequality tends to be exacerbated by the digital divide whereby some of a population lacks online access. And it's not just emerging nations that are affected: According to the Wireless Broadband Alliance, 1.75 billion citizens in the world's eight GDP-richest countries remain unconnected – with 34 percent residing in major urban centers.

People living in rural communities and those at the lower end of the income spectrum tend to bear the brunt of the digital divide. According to the FCC, the digital divide between rural and urban America “remains too large to bring rural communities fully into the digital age,” with 10 percent of Americans lacking broadband access.

Compared with an economic and digital powerhouse like the States, the urban-rural connectivity divide is much more acutely felt in developing and emerging economies, where the affordability gap between city and rural dwellers further polarizes wealth and compromises economic and development potential.

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Nigeria: Bridging the digital divide

Ranking 70th in Huawei's Global Connectivity Index 2018, Nigeria's current Internet penetration rate of 50.2 percent means that around half of the African nation's 186 million people have no way of benefiting from online opportunities. In 2018 Huawei ICT Sustainable Development Goals Benchmark, Nigeria fairs poorly out of the 49 nations studied, coming in second to last, one position below Bangladesh.

A total 51 percent of Nigerian's live outside of cities, typically around grasslands and forests in a state of digital isolation. Many villagers lack basic communications infrastructure and mobile signals are poor, forcing residents to walk several kilometers to make a call in the nearest town. Constructing traditional tower-mounted macro sites is expensive because existing infrastructure is weak, lacking both mains supply and transmission resources. Moreover, ARPU is just US\$1 to US\$1.5, lengthening the ROI period for telcos to more than 10 years.

To address these issues, Huawei teamed up with MTN to deploy Huawei's RuralStar 2.0 solution, which is designed specifically to connect the unconnected in remote areas. Solar powered by just six panels per unit, RuralStar isn't dependent on an existing power supply.

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Equipped with non-line-of-site (NLOS) LTE Relay technology, the solution can be pole-mounted at a height of just 12 meters. In contrast, line-of-site microwave signals require relay points to be in sight of each other. They have to be mounted on very high towers so that local geography or buildings don't break transmission signals. RuralStar works by

enabling relay hops of wireless signals to distances of over 40 km, overcoming both distance and – with NLOS tech – barriers like buildings, mountains, and trees.

What does RuralStar 2.0 mean for MTN? A viable connection scenario for remote communities that incurs 50 percent less TCO, a whopping 70 percent reduction in usual site construction costs, and a fast ROI of about three years. For villagers it means affordable connectivity and, according to the village chief of Tobolo in Ogun, a cause for celebration that saw much singing and dancing when the solution went live: Families in Tobolo could get back in touch with relatives who have left the village.

Connecting the unconnected in Nigeria doesn't end here. It's expected that millions of Nigerians will become connected for the first time by 2022, cutting the digital divide so that more people can enjoy the personal and economic potential brought by wireless communications and mobile Internet.

There are still 3 billion people in the world who don't have mobile Internet, 870 million of whom lack mobile phones. Moreover, 1.1 billion households are without home broadband. These are huge numbers, but change begins with small steps, or in the case of RuralStar, with small hops.



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Empowering children through health and education

Like broadband access, health and education are key development markers that affect developing and developed nations alike, invariably hitting the impoverished, remote, and unconnected the hardest. The World Health Organization directly links good health to economic growth as healthy populations achieve “higher labor productivity, demographic changes, and educational attainment.” As well as creating a personal and national financial burden, another knock-on effect of poor health – educational attainment – not only affects individuals, but in turn adds to the burden of nations whose citizens are ill-prepared to enter the digital economy and benefit from the age of intelligent connectivity.

Mongolia: Connecting to a better quality of life

Vast and sparsely populated, Mongolia is the world’s 18th largest country, yet is home to just 1.9 people per square kilometer. Fifty-five percent of the nation’s 3.1 million people live outside of cities, with 40 percent of those living in yurts and working as nomadic herdsman. A study by the US National

Library of Medicine published in August 2017 noted that, “A few studies in Mongolia have focused on inequality in health. However, little attention has been paid to inequalities in health resources by geographical area.” Indeed the study found large differences in the distribution of nurses, physicians, and hospital beds based on geographical area, reducing healthcare access for children and adults in remote areas.

On the education front, a range of improvement measures have been applied to boost primary education in rural Mongolia. However, the latest figures from UNESCO show that inequalities persist in older age groups based on location, region, and wealth.

Inequality in healthcare and education feed off each other, increasing disparity within national borders, preventing participation in the national economy, and lowering productivity. However, boosting connectivity with broadband is one way to narrow the gaps caused largely by geography. Of all the SDGs, we’ve found that good health (SDG 3) and high-quality education (SDG 4) show the strongest correlation with developed ICT infrastructure.

In January 2017, Huawei and Unitel launched a plug



and play wireless home broadband Wi-Fi solution. Powered by Unitel's nationwide 4.5G LTE network, the solution includes Huawei's wireless B315s-607 router, which Unitel subsidizes or provides for free. To date, the service has connected 8 percent of the nation's unconnected, including 50,000 households, 200,000 personal users, and 1,200 businesses.

As well as providing benefits to herders and local businesses, healthcare and education have both received a shot in the arm. First, a total of 74 hospitals are upping their game with online consultations. Figures from the Communication Research Center of Mongolia predict that 560,000 Mongolians will be using online healthcare by the end of 2018. Second, Internet connectivity is enabling 35,000 rural healthcare professionals to access further education courses. And, third, 35 rural public schools can now access and download videos and educational materials.

For the 600,000 or so households that are still offline, Huawei and Unitel plan to add a further 1,200 network sites – the project will reach another 300,000 households with wireless broadband by 2020.

A spot of analysis

One common thread in each of these cases is that inequality coupled with a lack of digital infrastructure leads to one inevitable and unsustainable outcome: the Matthew effect – the rich get richer and the poor get poorer. The Matthew effect is damaging at two levels: one, inequality increases within a nation's borders, for example, between urban and rural areas, between genders, and between development markers like health and education. And two, inequality prevents nations from fully competing and collaborating in the digital economy. At the same, the leaders pull ahead, a trend that's observed in Huawei's GCI 2018.

The UN's SDGs set out the blueprint for the things that humanity really needs to care about and get right. And ICT investment is the tool to help make this happen – our research shows that ICT correlates strongly with three key markers of sustainable development: GDP, the Human Development Index, and the Environmental Protection Index.

It takes small steps to open up the vista of change, and digital infrastructure will lay the road for us to take these steps together. A single company, organization, or nation cannot go it alone. We believe that together we can walk farther and that's why Huawei places great value on SDG 17 – Partnerships. [www.huawei.com](#)