The promise of universal connectivity
Why a connected world can mean a better world

By Alex Miller | Oct 24, 2019

The rapid increase of internet connectivity over the last decade has brought with it profound changes and benefits to modern society. Today, more than half the world’s population — almost four billion people — have access to some type of internet connection.

Access to internet is much higher in developed countries, with Iceland topping the list at almost 100% access. At the other end of the spectrum, in the small African country of Eritrea, just 1.2% of the population is connected. This is a reflection of an overall worldwide connectivity gap: 81% of the developed world is online, while an average of just 15 percent of underdeveloped populations are connected.

Even so, an increase in connectivity seems inevitable.

In 2000, just 200 residents of Somalia — population 9 million — reported they were online. By Jan. 2019, that number had jumped to more than 2 million. With Somalia’s current population of 15 million, that percentage is still far below the global average.

The entire African continent has increased its internet usage 11,000% since 2000. India saw almost 100 million people come online in the past year alone, increasing its total penetration to more than 40%, up from 31% a year ago.

Even the world’s top economies have seen dramatic increases in internet usage since 2000. Back then, just 43% of Americans were online; the rate is almost 90% now. China, which had less than 2% of its population connected in 2000 now has nearly a billion users — almost 60% of its population.

Some developing countries are even more successful at connecting their population — Brazil has almost 70% connectivity, and...
Vietnam is not far behind with two-thirds of its population online.

All over the world, people are using the internet for similar reasons. A recent study of worldwide internet use shows there are almost 4 billion mobile users. The proliferation of smartphones accounts for a large part of the increase in global connectivity. Worldwide, 57% of people use the internet, and more than 9 in 10 of those connected use a mobile device. People everywhere report social media as the top reason for connectivity, with e-commerce and video streaming not far behind.

These trends suggest how much internet has changed lives, not just for those in the strongest economies, but for nearly every nation on earth. Almost every job and occupation has been touched, or changed drastically, by the digital revolution. Shopping, travel, transportation and relationships have all been transformed.

Even at the far ends of the globe, lives are different than they were 15 years ago. Small communities in Mexico and isolated settlements in Africa have the potential to connect with one another, or to other distant places. A youth on a smartphone in the Middle East can learn from a professor or school thousands of miles away. A crafter in the U.S. can buy authentic hand-spun yarn from a craftswoman in Chile. These types of connections were only distant visions less than a generation ago.

When the internet first became available, its use was hampered by slow speeds (remember dial-up?), and a lack of intuitive function (think back to DOS and C prompts). It was used almost strictly for business, rarely at home, and not at all for kids or seniors. Wireless technology and the 2007 introduction of the iPhone expanded the use of the internet from people sitting at their office desks to anywhere Wi-Fi was available. That meant people could communicate anywhere, anytime, in a very easily understandable format. Kids could play games while parents texted, grandparents could see photos of family, and workers could easily take the job out of the office.

Older adults who initially didn’t feel the need to be connected — or were intimidated by the technology — now own tablets, e-readers, laptops and especially smartphones. AARP offers classes across the country to help seniors learn how to connect and be digitally proficient. People who never considered working outside a corporate environment now work from home or manage their own home-based businesses. Parents with school-aged children can have the best of both worlds – they can stay at home and work at the same time.

The unconnected

Despite the exponential growth in internet use — and the need and desire to be online — there are more than four billion people across the globe without broadband internet. Why?
One reason is that government policy restricts the use and growth of internet access in certain countries. Yet many in open societies and emerging economies remain offline.

Many of these people live in rural areas, perhaps with rough terrain. Much of today’s internet service is delivered using extensive ground infrastructure. For cable and fiber, cables need to be strung or trenched, while for mobile networks, towers must be raised. Other wireless technologies require line-of-sight between a transmitter on a tower and an antenna on a building.

The result is that many hard-to-reach areas may remain unconnected — or only have access to relatively weak service. Much of this is directly related to the business model for these services. To make a profit, terrestrial providers gravitate toward more populated areas, where more users paying for service justify the cost of the infrastructure.

In rural areas, and even some areas just outside urban cores, that model likely isn’t profitable. Where there are few households or businesses per square mile, the average cost increases several-fold. People in rural areas can pay as much as 37% more for their broadband service as urban dwellers. The result is fewer service options for rural residents and businesses, and that’s the case to varying degrees in almost every country.

In addition, it often doesn’t make financial sense for traditional ISPs to go into low-income and less-affluent areas, where service prices may be out of reach for the population. It’s also financially unfeasible to install infrastructure in areas prone to floods, tornadoes, hurricanes and high winds. It’s the same in war zones or governmentally unstable locations.

With connectivity unavailable or financially out of reach, these populations and economies are falling further and further behind regions that are constantly moving forward with new technologies.

**The satellite solution**

The most viable solution for internet delivery to many of these areas is satellite. Since it requires little infrastructure on the ground beyond a small antenna (dish) on a building, satellite internet can be delivered just about anywhere there’s coverage. (Satellite also requires distributed ground stations connected to fiber lines.) And as that coverage expands globally thanks to companies like Viasat, the promise of connecting many of the world’s unconnected is becoming reality.

Satellite internet is the technology best able to handle the increasing demand for connectivity across the globe. According to the United Nations International Telecommunications Union’s (ITU) recent report on high-speed internet development: “A proliferation of (satellite-delivered)
broadband capacity across the globe, spurred by new technologies and...systems is bringing reliable connectivity to the hardest-to-reach corners of the Earth.”

Leveling the playing field

Access to internet means more than keeping in touch with family and friends, playing the latest games, or reading up on the news of the day – it can advance entire economies and the populations within them.

“Fast and affordable internet access will be this generation’s greatest leveler,” a Forbes contributor wrote. “Access to the internet means access to information, and access to communication networks: access that will improve education, health, and career outcomes.”

The significance of a skilled labor force in the new digital economy cannot be overstated. The G20 countries have identified skilled labor as national strategic objectives. For those in developing economies, this is especially important. Those without access to the internet in an internet-driven global society are falling further behind each day. Internet access helps the workforce:

› Access services that educate workers on how to find a job
› Learn new skills
› Advance and improve on skills already learned via internet training
› Move ahead to technology-based and higher-paying white collar jobs
› Search for job opportunities only advertised online

In turn, a skilled, connected labor force is vital to the overall economy of a country.

It’s estimated that a 1% uptick in skilled labor can increase GDP by 0.05 percent. That can add up. The McKinsey Global Institute expects productivity gains in Africa to be able to reach between $148 and $318 billion by 2025 — just from the internet. But to reach these numbers, government policies regarding affordable internet must be in place as well. Forecasts suggest 90% of all jobs created in the next 10 years will require some knowledge of technical skills. Younger workers need to cultivate these skills to be competitive worldwide. In demographic terms, Africa is the “youngest” continent, with 60% of the population under age 25. So there is a pressing need to cultivate digital proficiency among its younger workers to expand opportunities for those populations and economies as a whole.

“The future prosperity of any country depends ultimately on the number of persons in employment and how productive they are at work,” the International Labour Office in Geneva reported.

Education is fundamental

The prospects of fostering a trained and talented workforce are dim without general education. At a 2010 G20 Employment and Labour Ministers Meeting in Washington, DC, a report concurred that five critical elements are linked to successful growth strategies in
any economy:

1. Far-reaching availability of quality education for children who are in school and not at work is a crucial foundation for future training.

2. Building solid bridges between employers and those who provide training to match, and developing skills in potential employees that will be the most needed.

3. Continual workplace skills training so workers and companies can keep pace with changing technologies.

4. Keeping up with the future across the board. This means continued communication between employers, trainers, government institutions, labor market information, employment services and continuous re-evaluation of skill sets and needs.

5. Ensuring access and training opportunities, especially internet-driven ones, for all workers — especially disenfranchised groups, like women, minorities, youth and the disabled.

The G20 report points out that, “decent work, a universal aspiration, is the best path to self-advancement of women and men. It underpins the stability of communities and families. It is an integral component of strategies for sustainable growth and development. And skills are pivotal to decent work strategies.”

None of this can be done without a proper education, and access to technologies as they come along. In developed nations, this isn’t a problem. The average child in the U.S. spends 12 years in school. In Finland, the average is 13 years.

But for developing nations, poverty, the necessity for children to work, poor infrastructure, and armed conflict can keep children from getting even a basic education. Colombians receive, on average, an eighth-grade education.

An average Zambian receives a sixth-grade education, and in some countries, like Benin in West Africa, boys average five years of schooling, and girls just over two years.

Closing the gap

Lack of education and impoverished nations go hand in hand. Worldwide, more than 260 million children do not attend school, and the largest numbers correspond to the poorest regions of the globe. On average, more than 95% of children attend school in the developed world, but the numbers change drastically in emerging economies. In Latin America, the rate hovers around 90%, while in southern Asia, one in four children don’t make it to high school. In sub-Saharan Africa, only six in 10 children get much schooling at all.

To compound these statistics, many of the students who attend school have extremely limited access to the internet. In sub-Saharan Africa, less than half of students have worked on a computer, much less been online. In schools that
are fortunate enough to have computers and internet, there’s an average of just one computer for every 500 students.

For many of these students, just having electricity is considered a luxury.

Moreover, in many developing countries, girls receive less education than boys. Girls are often considered helpers in the home and are more likely to stay home to care for younger siblings and older relatives, plus do cooking, cleaning, sewing and tending to domesticated animals.

Access to internet can change many of these trends. As more regions become connected, the opportunity for boys and girls to get equal education expands — even if a teacher isn’t available locally. Education rates can rise as more advanced schooling becomes available for economically disadvantaged, rural and isolated areas.

Satellite internet has the potential to be the key to these advances. As they become more sophisticated and powerful, satellites can deliver high-speed, reliable signals at an ever-decreasing cost to less-connected populations.

Better education and access to technologically advanced, living-wage jobs can grow with increasing internet penetration. Training via internet is slowly becoming a reality for many of these populations, and digital inclusion is increasing around the world. And now, or in the near future, most of the world will have access to internet delivered via satellite.

A boost for women

Women and other vulnerable groups are now getting jobs or making their own jobs, something few had visualized just a decade ago. The internet makes it possible for women crafters in places like sub-Saharan Africa to create and sell unique products to anyone around the world. Platforms like Etsy, a home-crafting website on which anyone can make and sell products, are growing fast. Etsy’s sales worldwide totaled more than $3 billion in 2017, and yearly sales are increasing by double-digits. Worldwide, there are more than 1.7 million Etsy sellers, most of them women.

Access to micro-loans is another differentiator made possible with the internet. Loans are used for everything from helping a business owner buy food and clothing for sale to purchasing a cart to get their goods to the local market. A micro-loan could be used to buy the raw materials a business owner needs to make their baskets or clothing and other sellable goods.

Women often see the greatest benefit from this financial boost.

It’s hard to overstate the positive financial impact of greater numbers of women in the workforce. Research suggests that if women entered the financial economy in numbers equal to men, another $28 trillion would be added to the annual worldwide GDP by 2025. That’s roughly the combined total of the economies of the U.S. and China today.

The changing workplace

Being your own boss is becoming fashionable again with access to online platforms. In Pakistan, connection rates are around 22%, but the number is increasing quickly. And high-speed internet is changing lives in the country. In 2013, Pakistan had 3.79 million 3G connections; now the number is reaching 45
million. Graduates in Pakistan increasingly say they want to work for themselves via the internet rather than work for an organization. Pakistan’s hope is that in the near future, half its population will have a bank account. Right now, that number stands at 16%.

Even in developed countries, high-speed internet is helping the economy, granting financial inclusion to a vulnerable population: young people. In Spain, the unemployment rate is almost 15% across the board. It’s more than double that for those 25 and under, and was more than 50% for that demographic just a few years ago. This youth workforce has found help online. Today, nearly two-thirds of young people use the internet as a means of income for an independent business or through contract work that supplements other income.

What’s next?

Universal internet access is central to ensuring educational equality and equality of opportunity.

The future is undeniably brighter for many underserved and vulnerable populations in emerging countries. Next, governments need to go the extra mile and make it possible for their citizens to have access to affordable, high-speed internet. That in turn will spur economic development, allowing societies to close gender and financial gaps.

Some Latin American governments have been doing this with real success. In Brazil, for example, the state-run telecom Telebras has partnered with Viasat to make full use of its SGDC-1 satellite launched a few years ago. Together, they have installed satellite internet in thousands of sites across the country ranging from schools to healthcare centers and other government facilities. More types of connectivity services are on the way, including residential and Community Wi-Fi — a low-cost shared access point at a central location in a rural community.

Viasat’s Community Wi-Fi service has already rolled out all over Mexico, with thousands of installations now in reach of the over 1.8 million Mexicans within range of a hotspot. There, they can access the internet for as little as 50 cents.

Viasat is not alone in believing satellite is the technology that will ultimately connect billions more people worldwide. There will always be areas prone to natural disasters, regions with dauntingly difficult terrain and populations in isolated areas. Satellite can reach and serve virtually all of those communities from space.

And despite rapidly expanding technologies, devices, and the sheer amount of incoming data and internet connections, powerful satellites will be able to keep up with the billion devices that will be coming online.
Viasat is leading the way toward meeting this demand, with a three-satellite constellation — ViaSat-3, currently under construction — that is expected to cover most of the globe.

As the United Nations ITU stated: “It is a time of extraordinary technological revolution in space-based and upper atmosphere communications.”