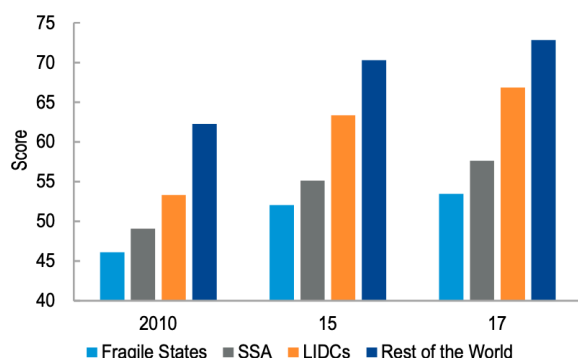


How technology can pull Sub-Saharan Africa out of poverty.

As the catalyst for the industrial revolution, sparking unprecedented economic transformation by revolutionising productivity, innovation, trade and more, technology stands as a pivotal driving force in facilitating growth. However, while countries like China and India have leveraged technology as a means for growth, in Sub-Saharan Africa, a region containing 7 of the 10 poorest countries by GDP per capita, technological investment remains far behind. Looking forward, how could further digitalisation in these struggling nations lead to potential success stories in Africa, and what other obstacles must be overcome?

The Current Situation:

To assess relative technological development across countries, the IMF's Enhanced Digital Access Index (EDAI) considers many variables influencing a



country's digital connectivity. It includes

access to internet and physical technology, as well as a country's digital depth - the extent to which day to day activities, transactions and communications are digitalised. Whilst rising, Sub-Saharan Africa's (SSA) EDAI ranking lies consistently below the rest of the world, testament to high connectivity costs, with the price of one gigabyte of mobile data averaging at ~10% of monthly per capita income.

With only 26% of people in SSA regularly accessing the internet, the contribution of digital technology to GDP remains low. The region continues to suffer high opportunity costs of potential job creation and improvements to efficiency. As such, organisations like the world bank have been investing heavily into digital development projects in recent times to improve digitalisation to transform the area.

The Benefits of Advancing Technology

Benefits of technological improvement are numerous, with multiple studies showing each 10% increase in internet penetration results in 1-2% increases in GDP. Furthermore, in Nigeria and Tanzania extreme poverty fell by 7% after a world bank project increased internet exposure to 70% of the population, while labour force participation rose by 8%. So, what are the main mechanisms behind this?

Firstly, firms. Businesses in SSA who digitalise their operations, such as using e-commerce, bring in over double the revenues compared to operating without. This results from being able to access new regional or even international markets, with a boom in mobile money payment solutions in the region, such as M-Pesa in Nigeria, facilitating this by allowing consumers to make online purchases without a traditional bank account. Over 75% of Nigerians over 15 years old have made a mobile payment in the last year, and this figure is projected to rise. Even simple measures, such as communicating with suppliers and sellers via email causes marked increases in a business's efficiency, thereby reducing costs. Additionally, as internet penetration has increased, more service sector businesses have started up, which frequently provide more added value than traditional industrial firms. These service sector businesses also provide increased employment opportunities for women, who take up jobs at a much higher rate than men in this sector and are the reason for increases in the labour force participation rate.

Countries have also been leveraging technology to address other key issues such as gaps in healthcare and education, which the IMF estimates cause a loss in over 50% of an individual's lifetime potential output. In Kenya, online education services promoting literacy and writing along with digital, financial and technical skills have been improving human capital, especially impacting rural areas where there are fewer schooling opportunities. Programs like this offer an opportunity to completely transform education in Sub Saharan Africa, where one third of 12–14-year-olds have no access to education. Coupling higher digital literacy rates with business growth is essential for SSA to plug gaps in the labour

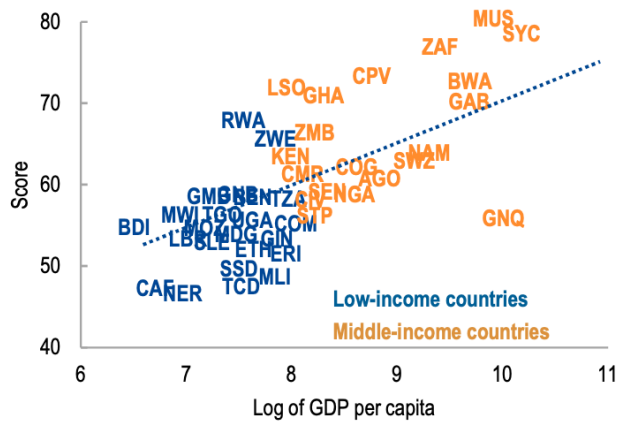
force and become more competitive to increase exports in our digitalised world.

Technology is also linked to increases in trust, such as reducing corruption. Take taxes for example, which can be paid online in minutes, compared to previous waiting times of over 100 days. Digitalised tax systems in Kenya and Tanzania have reduced corruption as well as bureaucracy by removing the opportunity for bribing corrupt tax officials, creating a more secure fiscal environment. In addition, technology allows businesses to respond to crises more efficiently, for example COVID-19 where people were able to work from home, keeping firms in operation. Along with other instances, technology has increased investor sentiment in the region, as businesses become more efficient, resilient and less vulnerable to corruption, leading to greater FDI prospects. This opens up opportunities to firms wanting to sell internationally. Since production costs for MNC's, which would be made up from purchasing goods from African producers, account for a small percentage of the total cost of production, considering transport advertising etc, even if African producers could offer competitive, low prices, the overall cost savings to MNC's would be small and as a result most prefer to source from more established markets such as China, where there is less risk of supply shocks. Therefore, it is incredibly important for SSA producers to increase their reliability and global reputation, which implementing technology will facilitate.

Barriers to Technological Advancement

Currently, there are still many barriers preventing a digitally flourishing SSA, and while much progress has been made in reducing the cost of technology and internet access, major issues still hold the region back. Developing physical digital

infrastructure, like improving the reliability of electricity services, connecting countries like Sudan and Central African Republic to submarine cables and expanding broadband access to rural areas, in addition to creating a population with the human capital



required to effectively utilise new technologies will require time to achieve. This of course is coupled with other challenges in the area separate to technology, such as disease, political instability, debt, famine and conflict, all of which must be addressed for any long term success. Low GDP, as shown, is a strong indicator of low EDAI and deprived nations lack the required government revenue to invest into creating a more sophisticated digital economy and as such, continued international cooperation and investment will be needed into the future. Yet, while there may well be a bumpy road ahead, the potential for technology to revolutionise productivity, job creation and innovation south of the Sahara should burn a bright light at the end of the tunnel.