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# How 5G technology could shape Africa's future



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## Africa.Connected

Developing nations have arguably surpassed their developed counterparts in benefiting from the rapid deployment of mobile technology. With the challenges of deploying fixed infrastructure (especially in rural and remote areas) and a shortage of ICT resources, mobile technology is the primary, and often only, platform to access the internet in developing countries, accounting for 87% of broadband connections in these regions.

The impact of mobile technology is likely to be even more profound in the future, with 5G – or the fifth generation of mobile communications technologies – expected to have an even greater societal levelling effect than its predecessors. Through the use of a wider radio spectrum, 5G delivers faster download and upload speeds, decreases latency, or the time it takes devices to communicate with wireless networks, and enables greater connectivity of devices than existing 4G LTE networks. This will allow for more technological innovation, such as cloud, big data, artificial intelligence and The Internet of Things (IoT), accelerating the Fourth Industrial Revolution (4IR) in Africa and facilitating digital inclusion, with the potential to change and improve human lives not only on the continent but across the world. According to the World Economic Forum (WEF), "5G will change the world even more profoundly than 3G and 4G; that it will be as revolutionary as electricity or the automobile, benefiting entire economies and entire societies".

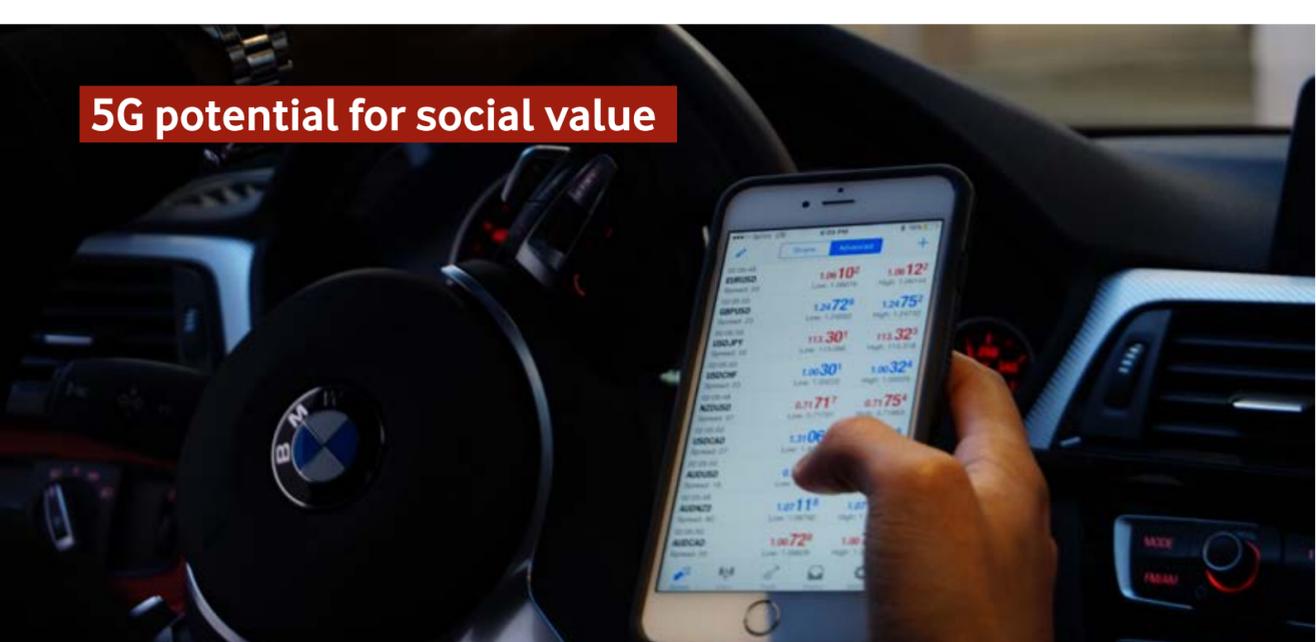
The WEF states that 5G will contribute to industrial advances in three significant ways: by enabling faster and more efficient manufacturing through predictive intelligence; by improving workplace and worker safety; and enhancing operational effectiveness in industries. In agriculture, for example, 5G enables the IoT to assist in monitoring the health of crops and livestock, thus preventing economic losses for farmers. Using fibre-like speeds on a mobile spectrum, 5G provides greater access to the socio-economic benefits of broadband connectivity. A World Bank study has shown that a 10% increase in broadband penetration results in 1% rise in GDP in developing countries. Notably for South Africa, an increase in broadband penetration is closely linked with job creation, improved education, better service delivery and increased rural development.



## Do we know the true potential of economic value?

The capabilities and potential benefits that 5G would bring to consumers and businesses within South Africa are limitless. Much like the introduction of 3G and 4G, many of us did not anticipate the explosion of disruptive business models that originated from mobile broadband, such as Uber, Facebook, AirBnB and countless digital businesses that have changed the way we live. In addition, as the Covid-19 pandemic has already increased the use of the digital technology in our everyday lives, from virtual classrooms to adoption of e-commerce strategies, imagine the possibilities with widespread and affordable access to 5G? We could be seeing self-driving automated cars on the highway, a life-saving surgery in rural KwaZulu-Natal performed through robotic VR by a top surgeon in Johannesburg, and the delivery of the latest smart TV from the factory to retail outlet to your living room, overnight.

According to WEF, fast, intelligent internet connectivity enabled by 5G technology is expected to create approximately R55 trillion in economic output and 22.3 million jobs by 2035 in the global 5G value chain alone. 5G capabilities will have an impact on every South African industry – education, healthcare, manufacturing, logistics and all businesses – large and small.



## 5G potential for social value

Key areas in which social value is created through 5G include: contributing to responsible consumption, enabling sustainable cities and communities, and promoting safe work and economic growth. Smart energy and water supply management systems are two of the critical Industry 4.0 services that will be enhanced by 5G ICT ecosystem technologies. Within the energy sector, utilities and municipalities are turning to smart energy solutions, such as revenue and customer management, smart metering and smart grid communications.



## What actions are needed

Generational change in mobile communications does not occur overnight. It requires significant effort in research and development, and the resources necessary to support that effort. Investments in 5G networks will reach R15 trillion worldwide by 2025 according to the GSMA. With connectivity at the heart of industry transformation, 5G technologies have a significant role to play – not just in the evolution of communication, but in the evolution of businesses and societies as a whole.

In South Africa, the extension of mobile 5G coverage will be dependent on some spectrum being made available through digital migration and analogue switch-off. To enable a 5G-empowered future, it is essential that private and public sectors work together to realise the socio-economic value that 5G can deliver – both to South Africa and the African continent.