

Development in Brief



No. 39, 4 November 2015

Broadband infrastructure - Digital lifeline for sustainable development

Author: Thorsten Scherf

Editor: Simone Sieler

Modern information and communication technologies (ICT) have spread rapidly in developing countries (DC) in recent years, and the digital change is permeating further and further into all areas of life.

Digital Divide = The Broadband Gap

Access to these technologies, however, is still very unequal. The most pronounced inequality is the so-called “digital divide” in the expansion of broadband infrastructure, which is of particular importance for internet usage. Here, DC lag significantly behind industrialised countries. In DC there are only 21 broadband connections per 100 inhabitants. In industrialised countries (IC) however, the broadband penetration rate is 84%. The conditions prevailing in the individual DC are regionally very unequal, too. In urban centres it is worthwhile for private providers to offer broadband services. Rural areas are mostly left “hanging” as they are not profitable for private providers (as the population density is too low). Additionally, the poor segments of the population often cannot afford broadband connections: the prices in DC are often many times higher than those in IC.

Engine for economic growth

Broadband is a so-called “general purpose technology”, which makes many processes more efficient, more effective and more transparent, and can therefore contribute significantly to sustainable development. Hence unequal broadband coverage in DC contributes to deepening and reinforcing existing development inequalities.

A number of studies have established that there is a strong positive correlation between broadband penetration and economic growth in DC. Accordingly, an increase in broadband penetration by 10% in DC leads to an increase in GDP by up to 1.39%.

Providing broadband does require a high

initial investment at first, but it quickly pays for itself. In a recent study, researchers estimated a threefold increase in the penetration rate of (mobile) broadband internet in DC – from currently 21% to 60% – would generate costs of USD 1.3 trillion. At the same time, however, annual GDP growth of USD 500 billion was forecast, which would be steadily increasing and add up over the next few decades to GDP growth totalling USD 22 trillion. Thus every US dollar invested in broadband infrastructure would generate economic growth of 17 US dollars.

Such estimates are based on many assumptions and need to be interpreted with caution. The effects can vary significantly from country to country depending on the context. Nevertheless, recent studies on the set-up and expansion of broadband infrastructure in DC seem to show a promising investment for sustainable economic development.

Broadband for socially and ecologically sustainable development

However, broadband is more than just a pure growth driver. It can also make an important contribution to socially and ecologically sustainable development: Broadband, for example, enables the rapid transmission of medical data (e.g. X-rays) between medical personnel in rural areas and specialists in urban hospitals. It can allow for the implementation of innovative teaching methods: numerous internationally recognised universities have expanded their offer by freely accessible online courses which students in remote areas, or even across continents can take part in over the internet. Furthermore, broadband internet enables the collection, transmission and analysis of traffic data as well as intelligent traffic control derived therefrom (“smart cities”). This, in turn, can significantly contribute to reducing CO₂ pollution in large cities.

Conditions for taking advantage of opportunities presented by digitisation

The realisation of the enormous potential of digital technologies depends not only on the technical infrastructure of a country (connection to the network), but also on regulatory, political and socio-economic factors such as internet freedom, income and education level, as well as development knowledge, user expertise and user knowledge of digital technologies.

In any case, however, widespread and affordable access to broadband internet has a key role to play. Such access is absolutely essential if we are to make the most of the economic and social opportunities of digitisation for sustainable and regionally balanced development.

Conclusion

Harnessing the potential of digital change requires appropriate regulatory and institutional frameworks, which offer private providers incentives to deploy broadband internet at affordable prices. For the areas that are not profitable from a private sector perspective, there needs to be development in innovative financing mechanisms to ensure the supply there as well. At the same time there is a need for an environment that promotes the development and use of new ICT applications throughout broad parts of the population.

Literature

Auriol, E. and A. Fanfalone (2014): Benefits and Costs of the Infrastructure Targets for the Post-2015 Development Agenda, Broadband Assessment Paper, Copenhagen Consensus Center

World Economic Forum (2015), The Global Information Technology Report 2015; Geneva