

Microsatellite Services and Africa – The New “Space” Challenge for Institutional and Private Investors

Giacomo Primo Sciortino

Pegaso International, Italy
shortman@shortman.it

Roberto Fotia

Pegaso International, Italy
roberto.fotia@gmail.com

Kwaku Sumah

Pegaso International, Italy
kwaku@spacehubs.africa

Abstract

This study moves from previous research by the authors into the perspective for innovative space based (low cost micro satellites) speed band communication, to increase and play the major and most effective role, compared to the other web connection technologies (wired grids, traditional satellite systems), in reducing the digital divide of Developing Countries.

Africa is the focus having, among others, the majority of LDCs. It was found that the context and maturity of a country to host space infrastructures / networks and use their relative services, as the various current initiatives are showing (SpaceLink, One Web, Hongyan, Huawei, etc.), are the real and preliminary requirement for any such investments; at the educational, legal, industrial and political level, no matter how those investments might already appear technically and financially feasible.

Therefore, we have searched out, over the last years, the space sector Official Development Assistance (ODA) funded projects carried out by the International Financial Institutions (IFI) in Africa (World Bank, African Development Bank, FES, etc.), which are the crucial “inducers” of the evolution of a country’s local context and maturity. We derived some considerations on the emerging regional and technical paths according to these aid policies. The work focuses on some cases: Egypt, Nigeria, South Africa, etc. While these

countries may not be a priority for receiving ODA, they are, by many indicators, at the continental forefront regarding space systems. Both general (IFI) and country-based fact sheets reveal that communication services, although a most important field, are connected and integrated with other sizeable areas of space “production” catering to terrestrial users. Satellite imagery in particular, which is crucial nowadays for agriculture, national safety as well as environmental and industrial monitoring; and positioning services (GPS, Galileo).

With the goal of suggesting a path for more African countries to organize their evolution towards space and stimulate ODA interaction, this study offers a practical simulation of “space-bundle” services – and therefore not only in speed band telecommunications (TLC) - available over sea and land to African countries, with their features and competitive pricing. It is drawn from a modeling (applied to Nigeria) of an entirely privately financed low-cost microsatellite constellation, on a project financing basis, which was twice presented at the International Astronautical Federation Symposia (IAF annual Conferences) in 2017 and 2018 and still is offering precious inputs for trimming and adjusting technical and financial aspects of practical commercial ventures.

Keywords: LC Microsatellites, Africa, Digital Divide, Space Economy