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Space Economy - New models and economic approaches for private space ventures, with an emphasis on  
the needs of emerging space nations (3)

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ANALYSIS OF THE SPACE ECONOMY DOWNSTREAM IN AFRICA – THE CASE STUDY OF  
ANGOLA

**Abstract**

With an estimated population of 1.34 billion, which represents about 14% percent of the world's population (by 2020), the second largest continent (Africa), has 54 sovereign countries, fighting to have more access to space benefits, since the convenient lifestyle and high standard of living in the developed world are supported by the instant access and others space-based applications. Even the supplies of basic products such as food and energy resources are facilitated by space-based technology. In addition, space-based solutions are necessary for the effective management of resources such as agriculture, water, forests and marine ecosystems. With these facts, is inconceivable to realize that so many of Africa's space-derived services and products are outsourced.

Active participation in the development of space-related applications and services will enable the continent to meet the objectives of the African Union (AU), for the Agenda 2063. Space applications are needed to achieve the strategic objectives related.

The African space Strategy is mainly focus on Civilian and Commercial Space and there are more downstream space activities (applications) than upstream (space technology). This study aim to address the downstream space economy, since the promotion of knowledge, its benefits and the application of space resources are the basis for the spatial technological development of any country. As a case study, we start with Angola, an persevering African country to achieve a spot in the space domain. In 2017, the first attempt to become the owner of a telecommunication satellite was postponed due to the satellite's inoperability after the launch and a subsequent restart for an Angosat-2 was needed. Right, now Angola has a much stronger and diversified spatial strategy, especially in terms of space applications (downstream), pending the 2nd opportunity to become an upstream owner with the launch of Angosat-2.

Once the use of Earth Observation data and Geo-Information Systems (GISs) is vital to improve economic productivity of natural resources and human well-being, was approved, this year, in Angola an Observation Space Program, which aim to address the needs of an market of 35.136.000 USD expected for annual revenues once implemented. Around 95% of the efforts and investment in the space sector in Angola, is made by the government. The study will be carried out through bibliographic research, interviews and mapping of the stakeholders, with the intention of replicate the model to any other African country.

Key-words: Africa downstream, Space applications, Earth observation, space in Africa.