What is Next?
Discussing the Key Takeaways and the Way Forward for the African Space Industry

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1. Public-private partnerships and collaborations with government agencies, research institutions, and international organisations are often crucial for driving innovation and commercialisation in the space sector. How can companies like Africa EO Services effectively leverage such partnerships to access funding, facilitate knowledge transfer, and contribute to capacity-building efforts in the African space industry?

My current position - First of all, I would like to state that **I am African** and part of the African **diaspora** working in Europe. For more than 12 years within VisioTerra, I have been working to **transfer to Africa the space technology** acquired through several software development projects, cartographic production, training, studies including several carried out with the **European Space Agency** (ESA).

My company AfEOS - Moroccan, I created **Africa EO Services** to carry out this technology transfer. We use VisioTerra's IT knowledge to easily access Copernicus data. AfEOS designs Web and smartphone applications in collaboration with end users in different countries on the African continent.

Copernicus - I am convinced that the Copernicus program is an unprecedented opportunity to obtain **free data and services** using an impressive amount of data in a wide variety of fields (optics, radar, altimetry, thermal, atmospheric chemistry). I am a member of the ***Copernicus Academy***, of *Copernicus Relay* and especially of the European association ***Women in Copernicus***. On the African side, you all know my involvement in ***Women in GMES & Africa***.

Education - I am also involved in the education of young people from primary school to raise their awareness of the contribution of space for their future careers. I like to play "**Inspector Copernicus**" with the children to find deforestation / floods / active fires / burned areas / urban expansion... in Sentinel images.

Earth Observation is an opportunity for Africa - As I have been able to demonstrate by designing and operating several platforms:

- **FLEGT Watch**, web platform and smartphone application funded by the European Union, for detecting deforestation and alerting NGOs in 8 countries totalling 45 million hectares of areas to be monitored.
- **MISBAR**, web platform developed for the OSS consortium as part of the GMES&Africa program for the analysis of seasonal agriculture and irrigation monitoring.
- **CAFWS**, web platform developed for the AGEOS consortium as part of the GMES&Africa program for the detection of deforestation, active fires and burned areas.
- **GERNAC**, web platform and smartphone application developed for the CICOS consortium as part of the GMES&Africa program for navigation assistance, flood detection, deforestation, active fires and burned areas.

Funding - Until now AfEOS has only benefited from institutional funding from the African Union and the European Union. Unfortunately, this *one-shot* funding only concerns the development of geoservices infrastructures and does not include **medium-term support** for training / field visits / feedbacks / improvements... which would consolidate the ownership of space solutions by end users.
In our opinion, a large majority of end users are not yet ready to finance the use of geoservices. By way of illustration, we unsuccessfully prospected several companies in the private logging sector to offer them the opportunity to subscribe, even at a loss-making price, to the FLEGT Watch application which had been financed by the EU to serve free of charge to NGOs.

2. As the demand for Earth observation data and geospatial analytics continues to grow across various sectors, such as agriculture, urban planning, and natural resource management, there may be a need for specialised services and customised solutions. How is Africa EO Services positioning itself to address these emerging market needs, and what strategies are employed to foster innovation and develop tailored offerings?

Observe practices / listen to needs - The ***technology-push*** approach cannot precede or replace the maturity of practices. We must continue to meet stakeholders in the field, observe their practices, identify their needs, present the technological opportunities offered and above all **support** them, develop communities of space users, communicate by promoting successes, analyse failures, create a dynamic... AfSA can play a key role in emulating such a **dynamic of uses**.

State of space use in Europe - This dynamic of uses is also a concern of EU and ESA in Europe. Between the very high level of the technological offer of the Copernicus program and the (still) too low degree of appropriation of users and of the commercial sector, the EU and its partners (ESA, EUMETSAT, ECMWF) are seeking to make up for the delay. in data access **infrastructures** and services. This delay gave us this strange situation in which European data was more easily available through American networks such as Google or Amazon.

Education - Another "*oversight*" by Copernicus program concerns education, which does not benefit from any funding. The Copernicus Academy tries to operate with the voluntary contribution of academic and research institutes. Few companies, and in particular very small enterprises (VSE), participate in this association voluntarily, as VisioTerra does. AfEOS, and I in particular, are taking actions for this **space education in Africa**.

3. You represent a company specialising in Earth observation and geospatial data analytics, and you have first-hand experience navigating the challenges and opportunities in the African space industry. From a private sector perspective, what are the key barriers and obstacles that companies like yours face in scaling up operations and expanding services across the continent?

Access to massive data - As mentioned by several GMES&Africa consortia, one of the main obstacles to the use of satellite data and in particular multi-date images is the very large volume of data to download in opposition to the **low bandwidth** in most parts of Africa. AfEOS uses technical solutions developed by VisioTerra in Europe (*Data Processing Relay*, *DIAS* and soon *DaMiNo*) to overcome these constraints.

Smartphone solutions - The African continent has skipped a step, that of wired, by developing in an unprecedented way the use of smartphones, much more developed than in Europe. AfEOS continues

on the path of **Android** software development (open-source mobile operating system). The objective is to be able to synchronize the smartphone application with servers when Internet communication is established and then to be able to use the smartphone autonomously (often using GPS) in regions not covered by the Internet. This solution opens the way to a **collaborative** approach with users.

APIs and geoservices around AfSA - To enable African start-ups to develop these smartphone applications, they must have APIs (Application Programming Interface) for access to data and base geoservices offered by the agencies space and AfSA in particular. AfEOS and VisioTerra are currently drafting a **Concept Note** which will be submitted to the African Space Council and its President.