

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Societal and Economic Applications, Challenges and Benefits (5)

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EARTH OBSERVATION DIGITAL TRANSFORMATION AND SUSTAINABILITY: CHALLENGES &
OPPORTUNITIES

Abstract

The way Earth Observation satellite imagery and services have been used and generated so far is changing rapidly, with near-real-time and at-scale monitoring capabilities opening up new applications. Digitalization promotes sustainable practices and greening policies and helps to tackle climate change by engaging a wider customer base and facilitating access to information, which benefits non-expert communities.

This paper will first review new digitalization processes and how they will have a positive impact on new sustainable applications and will provide greater efficiency and socio-economic benefits. This paper will provide a strategic review of the main drivers and challenges affecting the Earth Observation data to generate information for the next decade. This is based on the Euroconsult Market Intelligence flagship report: The Earth Observation Data and Services by 2032.

Digitalization is a rapid trend of numerical transformation and automation, that improves efficiency, and accessibility in a more interconnected and flexible environment. Being applied all along the EO value chain, these outside technology advances are automating data collection and service generation. This improves satellite hyper-reactivity through instant tasking, rapid processing, and secure information dissemination that provides easy and secured access to the non-expert user community. New applications are emerging at the crossroads between security and sustainability such as those based on Natural Disaster Management with reinsurance companies accelerating their claims reimbursement and preventing fraud. Digitalization is essentially based on multiple innovation cycles such as with AI-algorithm development, Cloud computing, or virtualization. This improves data management efficiency by shifting lower-added-value processing such as labeling and classification toward more advanced end-to-end services at scale. Thus, more complex tasks are processed in the back-end while easing user experience in the front end, thus fostering end-user adoption for greater volume and premium demand for complex datasets.

In the paper, we can emphasize specific commercial use cases and show the benefits of sustainable action to sustain the policymaking process and increase compliance with regulations. We will see how digitalization is enabling a wider consideration of the UN-Social Development Goals and how this is paving the way for further regulated carbon credit markets, and related EO applications engaging in emission reduction to storage verification.

Keywords: Earth Observation, Greening practices and compliance, Corporate Social Responsibility (CSR), Agriculture, Forestry, Energy, Infrastructure, Natural Resources Management, Natural Disasters Mitigation, Environment Social and Governance (ESG), UN-SDG, Carbon Credits.